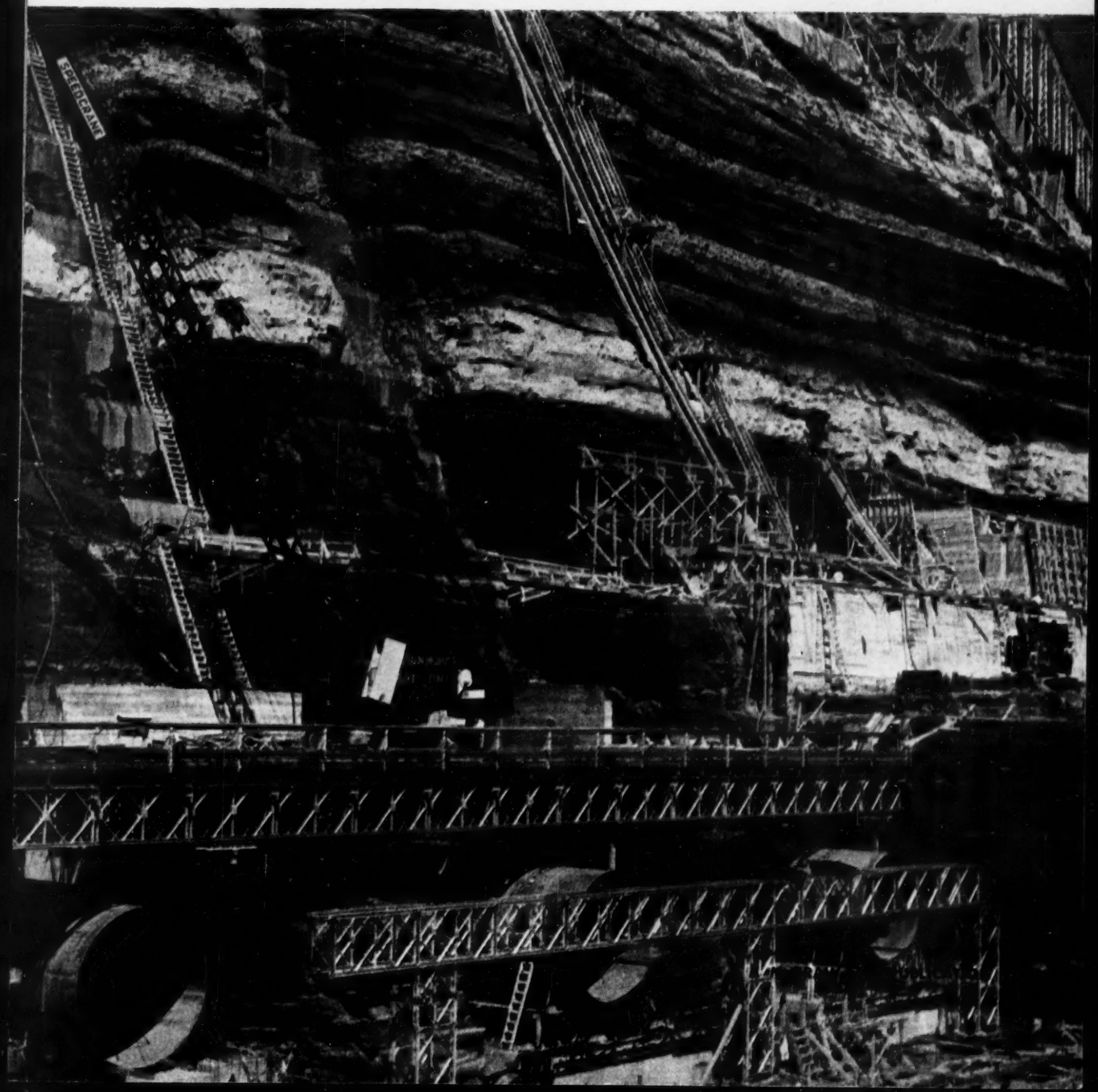
35 CENTS

CONSTRUCTION
METHODS AND EQUIPMENT

June 1953

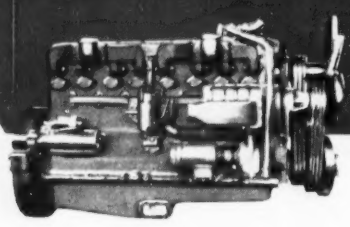


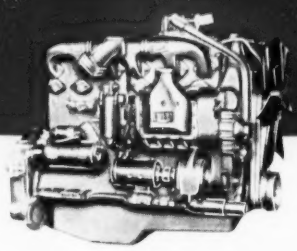
WHY UNDER-POWER YOUR EQUIPMENT

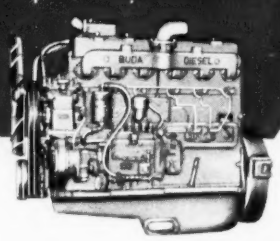
when BIG displacement Buda Diesels give you so many advantages?











BUDA Diesel Advantage:	Benefit To You:
• 12 to 18% MORE HORSEPOWER AT NORMAL OPERATING SPEEDS	Faster trips . . . heaped loads . . . more production . . . greater reserve . . . lower cost per yard
• 10 to 17% MORE USEABLE TORQUE	Greater lugging ability . . . less shifting and jerking . . . longer equipment life . . . reduced maintenance and downtime
• SMOOTHER, QUIETER OPERATION	Increased operator comfort . . . less exhaust fumes and smoke . . . greater efficiency . . . more production per shift
• EXCLUSIVE DYNA-SWIRL COMBUSTION	More horsepower per gallon of fuel . . . lower all around fuel costs

You can't afford *not* to know all the facts about BIG displacement Buda Diesels—the engines that will increase your production while reducing costs on every yard you move. Ask your nearby Buda Engine Distributor. He'll be glad to supply the facts. *The Buda Company, Harvey Illinois.*

BUDA
COAST TO COAST
FACTORY EXPERIENCED SERVICE AND PARTS

BUDA

a Power-Full and Dependable Engine FOR EVERY NEED



BC-28

Manufacturers of Material Handling Equipment, Lifting Jacks, Maintenance of Way Products, Earth Drills and Diesel and Gasoline Engines

RESEARCH KEEPS **B.F.Goodrich** FIRST IN RUBBER



The belt with the built-in shock absorber

THAT'S just one of several Euclid Loaders speeding construction on the New York Thruway. Every day hundreds of tons of heavy gravel and clay are dumped on the belt. In tough service like this, the average conveyor belt can't stand the combination of impact, belt speed and abrasion. But construction engineers have found that the B. F. Goodrich belt, with a built-in shock absorber, can outlast by more than 3 times the life that can be expected of ordinary belts.

Here's the reason B. F. Goodrich conveyor belts are setting new records for long life and trouble-free operation on construction jobs of all kinds, in quarries, ore mines and wherever else shock load is common.

To protect the conveyor belt against shock and impact, B. F. Goodrich has added a patented *Transcord Breaker*. This extra layer of parallel cords in rubber, which is placed across belt width and around the belt edges, increases the adhesion of cover to carcass by 50%. It keeps the cover from tearing off the carcass under severe impact, prevents gouges and cuts from splitting the cover.

Whatever you move by belt—rock, ore, sand, gravel, dirt—there is a B. F. Goodrich conveyor belt that can do it better and for less. Your local BFG distributor can show you how these longer-lasting belts can save money or use the coupon to send for further information.

The B. F. Goodrich Company
Dept. M-46, Akron 18, Ohio

Without cost or obligation, please send information on:

- ☐ conveyor belts
- ☐ other rubber products (name type)____
- ☐ Have a BFG distributor see me.

Name_____

Company_____

Address_____

Conveyor Belts BY **B.F.Goodrich**

STRIPPING TOP SOIL

is another job this versatile unit does well. The simple rugged design of the Ware loader correctly distributes weight on tractor frame, regardless of the operation being performed. Down-pressure can be applied when it is necessary in tough digging. Hydraulic rams absorb shock loads . . . mean longer life and lower maintenance for both tractor and loader.



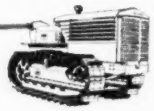
Picture Your Profits...

with this OLIVER Hydraulic

An Oliver Industrial Wheel Tractor with this *all-hydraulic* front-end loader is a combination that's hard to beat for low-cost, profitable operation. With any Oliver Wheel Tractor, you get famous Oliver dependable plus power, easy maneuverability, rugged construction. With the loader, manufactured exclusively for Oliver Wheel Tractors by Ware Machine Works, you get completely hydraulic operation which means easier, surer control for faster more efficient digging and loading. Take a look at the "profit pictures" shown here. They'll convince you that it's well worthwhile to ask your Oliver Industrial Distributor to arrange a demonstration of an Oliver tractor-loader combination for you.

THE OLIVER CORPORATION







400 W. Madison St., Chicago, Illinois

A complete line of Industrial Wheel and Crawler Tractors

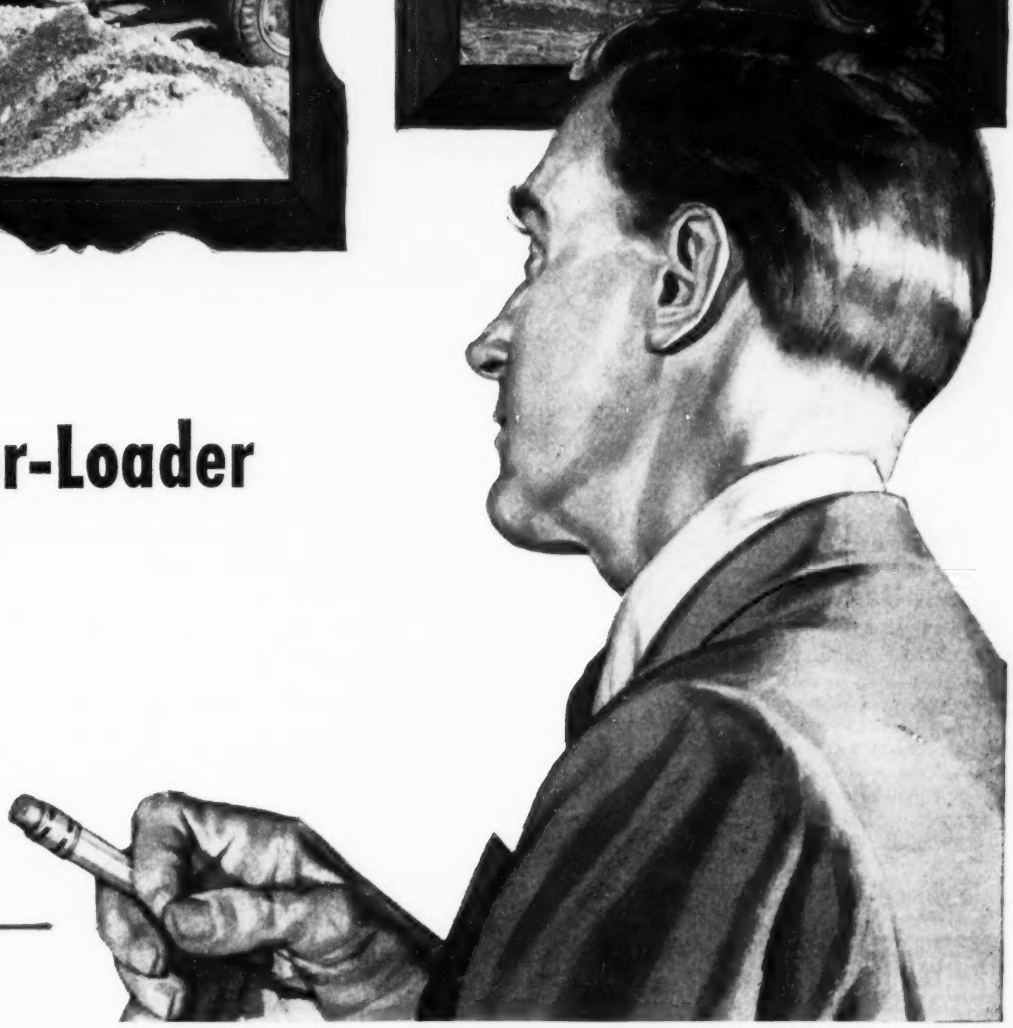
HYDRAULICALLY CONTROLLED BUCKET
assures greater "breaking-out" action—full bucket loads every time. 28° roll back helps prevent wasteful spillage.

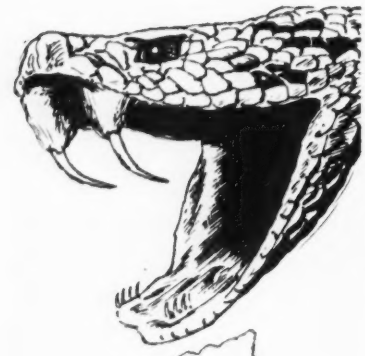


DISCHARGE IS FAST OR SLOW
depending on how you want it. Hydraulic controls make this possible. Mid-section pivot of loader arms give longer reach in dumping position.



Tractor-Loader



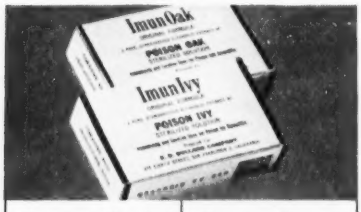


FIGHT SUMMERTIME HAZARDS!



VENEX*—FOR SNAKE BITE

Here's complete treatment for snake bite in a compact pocket packet. The Venex kit is simplified so the victim can treat himself. Medically approved venom-extraction method works immediately removing poison.



ImunOak* FOR POISON OAK | **ImunIvy*** FOR POISON IVY

Build immunity or treat the effects of these poisonous plants with ImunOak or ImunIvy. Easily administered orally or injected by a physician, these extracts have proven clinical records of prompt and marked relief.

FREE: *Write for copy of folder "Poisonous Plants at a Glance."*

E. D. BULLARD COMPANY

EVERYTHING BULLARD IN SAFETY

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SAN FRANCISCO, CALIFORNIA

Distributors in principal cities

*T. M. REG.

CONSTRUCTION METHODS AND EQUIPMENT

Volume 35, Number 6 **JUNE 1953** Established 1919

Pay Dirt in This Issue

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Material is cut from mountain, piled into river alongside. Impervious core and graded rock turn a neat trick.

Spinning an Aluminum Spiderweb 60
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Wellpoints Can Do Many Jobs 72
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Member ABC and ABP

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Twin-Swing-Span Bridge



Latest Forward Step Linking Tidewater Virginia

● Newest traffic crossing to pull together water-separated areas of Tidewater Virginia is this $9-million Bridge over the York River.

Said to be the world's largest twin-swing-span structure, it is 3,750 ft. in length, with two 500-ft. swing spans. Cantilever over-water construction is supported on six giant caissons built at Newport News Shipbuilding & Dry Dock Co., and floated to bridge site.

Caissons, 95 to 110 ft. in height, were sunk approximately 70 ft. into river bed, with tops about 40 ft. under water. Towering 90-ft. pier shafts were built by means of cofferdams on top of the caissons.

The Bridge has a 26-ft. clear roadway, with two safety walks for pedestrians. A total of 50,000 cu. yds. of concrete was used in the piers and deck.

Construction of this great Bridge, in a broad, deep, swift-flowing river, ranks this as an achievement of high order, another monument to engineering and construction skills.

Into the bridge proper, approaches, toll plaza and administration building went a total of 99,796 barrels of Lone Star Cement, every barrel of it the always-dependable high quality that makes Lone Star a fitting material with which to translate engineering vision into economical, durable reality.

GEORGE P. COLEMAN MEMORIAL BRIDGE
Yorktown-Gloucester Point, Va.

Engineers:
PARSONS, BRINCKERHOFF, HALL & MACDONALD
New York City

Bridge Construction:
MASSMAN CONSTRUCTION CO., Kansas City, Mo.
KANSAS CITY BRIDGE CO., Kansas City, Mo.

Concrete Paving:
Approaches: **W. H. SCOTT**, Franklin, Va.
Deck: **W. F. MAGANN CORP.**, Portsmouth, Va.

Toll Plaza & Administration Building:
THORINGTON CONSTRUCTION COMPANY
Richmond, Va.

Ready-Mix Lone Star Concrete:
Bridge, Paving, etc.:
YORKTOWN ICE & STORAGE CORPORATION
Yorktown, Va.

Ballast for Caissons:
BENSON-PHILLIPS CO., INC., Newport News, Va.



LONE STAR CEMENTS COVER
THE ENTIRE CONSTRUCTION FIELD

LONE STAR CEMENT CORPORATION

Offices: ABILENE, TEX. • ALBANY, N.Y. • BETHLEHEM, PA. • BIRMINGHAM
BOSTON • CHICAGO • DALLAS • HOUSTON • INDIANAPOLIS
KANSAS CITY, MO. • NEW ORLEANS • NEW YORK • NORFOLK
PHILADELPHIA • RICHMOND • ST. LOUIS • WASHINGTON, D.C.

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 18 MODERN MILLS, 129,000,000 SACKS ANNUAL CAPACITY



75 cfm puts full wallop in a heavy duty breaker.



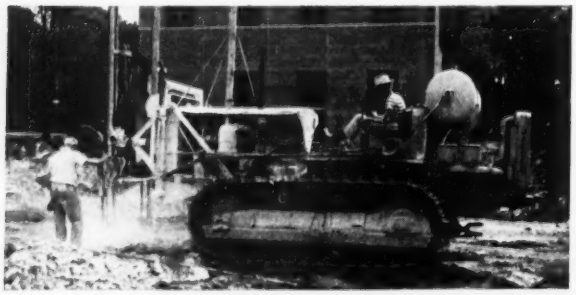
With 125 cfm these tools do 30%-40% more work.



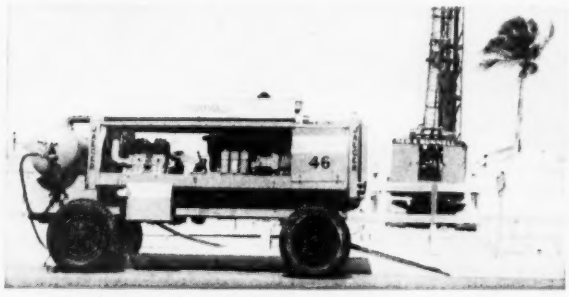
Three 365's — enough capacity for 4 heavy wagon drills.



More Jaeger air speeds many jobs, such as line testing.



Tractor mounted and powered, operates two big drills.



Ample air for heavy pile hammers, with a Jaeger 600.

Only JAEGER has built thousands of air compressors in "new standard" ratings . . .

75 • 125 • 185 • 250 • 365 • 600 cfm

Any compressor that produces 15% to 25% more air than others, without racing, overheating or vibration, must be engineered to higher standards.

Jaeger, alone, has engineered these new standards into thousands of compressor units, whose design features are not found in any other line of portable compressors, *old or new*:

- Balanced 2-stage "W" type compressor in every model from 75 to 600 ft.
- 75% to 100% larger valves; larger intercoolers and air receivers.
- Positive force feed lubrication, standard.
- Relief valve for automatic drainage, standard.
- Automatic "Fuel Miser" standard on all models where speed control means worthwhile fuel saving.
- Bigger clutches than any other compressors; bigger engines operating at conservative speeds.

Ask Your Jaeger Distributor to Prove This: At prices actually less than those still asked for "old standard" compressors, Jaeger compressors provide 15% to 25% greater volume of air at the lowest known cost per cubic foot.

THE JAEGER MACHINE COMPANY

800 Dublin Avenue, Columbus 16, Ohio

Pumps • Concrete Mixers • Truck Mixers • Aggregate Spreaders • Concrete Spreaders and Finishers

You pick the job!



WHAT's the toughest blading operation you've got? Ditching? Bank-sloping? If you want to see it done better, easier, with more work output per hour, watch a Cat* Motor Grader handle it.

Watch the operator change through the full range of blade positions in one minute without leaving his seat! Get into the seat yourself! Notice how the operator has a full view of his work without standing up. Check the steady production with no stops for adjustment.

Your Caterpillar Dealer is ready to demonstrate any of the three models—No. 212, No. 112, or No. 12. Fair enough? Call him today.

Caterpillar Tractor Co., Peoria, Illinois.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks—®

NAME THE DATE... YOUR DEALER WILL DEMONSTRATE

B.F. Goodrich



New Earth-Mover tires haul giant loads, yet float over sandy ground

FRANK T. HICKEY, INC., of Los Angeles is an earth-moving firm operating throughout southern California. The unit above is hauling 24 tons of sand fill for troop barracks at Fort Ord.

Plowing through sandy soil under a 24-ton payload, plus the weight of the equipment, would cause most tires to bog down and become useless. That's why this contractor mounts his machinery on new B. F. Goodrich All-Nylon 65" Special Earth-Mover tires. They are specifically designed to pull through loose, shifting soils without sinking in.

Special Earth-Mover tires do this because they operate at low air pressures that give greater flexibility. The tires conform more to the soil, rolling over it rather than digging into it. The cord body of the tire is made of nylon which stands the strain of this flexing action better than other materials.

Because extra-high cleats often have a tendency to churn the ground, Special Earth-Mover cleats are low and shallow. They provide positive traction, yet will not dig in and cause the tire to flounder. Your equipment stays on top of the earth and on schedule.

If your job calls for work in soft, sandy ground, you can get top traction and flotation by using this new tire.

B. F. Goodrich makes a complete line of cost-cutting tires for off-the-road service. See your retailer—he's listed under Tires in the Yellow Pages of your phone book.

Specify B. F. Goodrich tires when ordering new equipment

RESEARCH KEEPS B.F.Goodrich FIRST IN RUBBER

The B. F. Goodrich Co.,
Dept. TO-23, Akron, Ohio
Please send name and address of my nearest retailer.

Name_____

Company_____

Street_____

City and State_____

YOU THINK THIS JOB IS TOUGH!

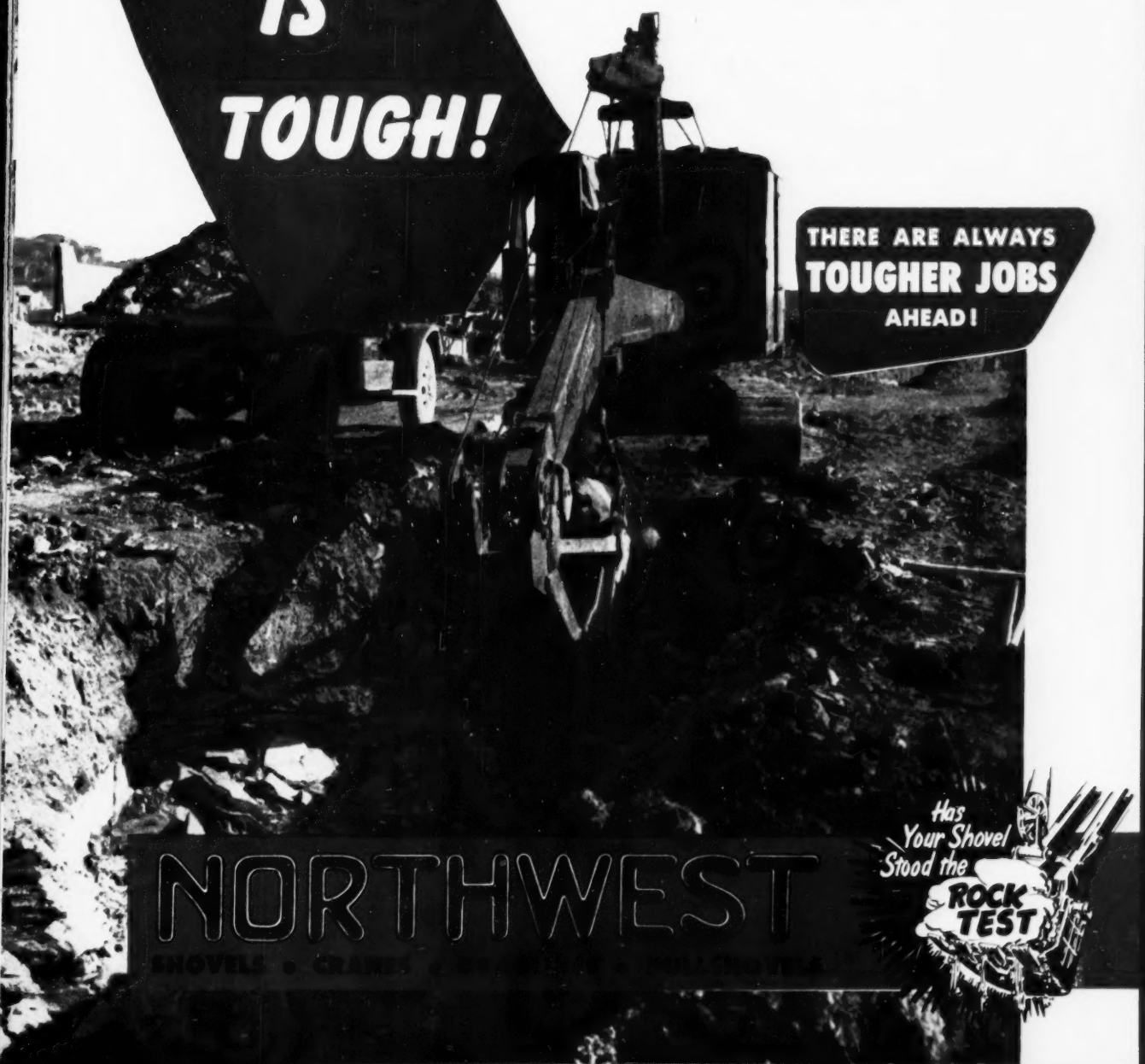
Tearing out a ditch through rock isn't the easiest digging in the world but it may be a cinch alongside the next job you hit.

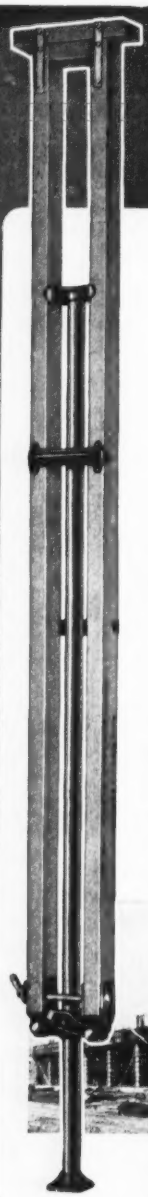
And that's the main thing about a Northwest! You're always prepared for the tough ones. You're equipped with the maximum in digging ability even when the jobs look easy—you're ready when the unexpected surprises you because your Northwest is built for the hardest job a Shovel, Crane, Dragline or Pullshovel has to do. Simplicity reduces upkeep and adjustment and cuts "down" time. Ease of operation without delicate mechanical complications is assured by the "Feather-Touch" Clutch Control. Uniform Pressure Swing Clutches take the jerks and grabs out of swinging and make spotting easy. The Cushion Clutch eliminates shock overloads before the shock gets to the machinery. Convertibility from Shovel, to Crane, Dragline or Pullshovel makes it easy to handle any excavation or material handling problem with the right equipment.

Tough jobs or easy, you are always ready with a Northwest.

NORTHWEST ENGINEERING COMPANY

1503 Field Building, 135 South LaSalle Street, Chicago 3, Illinois





CONTRACTORS KNOW . . .
they get FASTER SHORING
WITH **ROOSHORS**

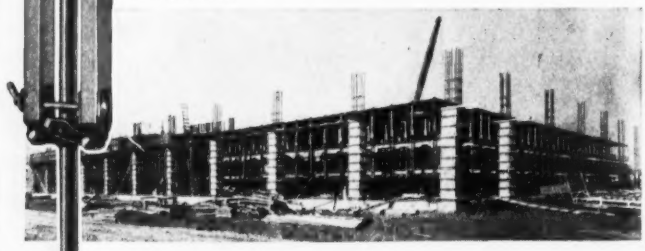


Rooshors help speed your progress schedules. They are easily set . . . instantly and accurately adjusted to any fraction of an inch by one man. There are no loose pins and no screw adjustments to become clogged. They have longer adjustments in their ranges of three sizes: 8 ft. to 14 ft.; 7 ft. to 13 ft.; and 5 ft. to 9 ft. . . . higher stories are shored with

ROOS EXTENTION SHORES



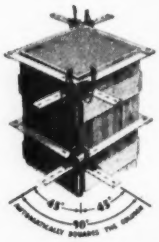
Roos Extension Shores are standard adjustable Rooshors with a flat steel head into which any length S4S 4 x 4 can be instantly inserted in the top of the Shore to take care of heights over 14 ft.



Rooshors have been used by contractors from coast to coast for over 35 years. More Rooshors are in use than any other adjustable shore!

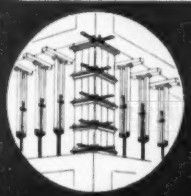
ROOS COLUMN CLAMPS

Roos Column Clamps, consisting of two identical hinged units, eliminate waste time and motion in fitting and adjusting. They are foolproof, there is no wrong way to put them on . . . no loose parts to cause needless delays and a hammer is the only tool needed.



WRITE TODAY FOR BULLETIN 253

Rooshors and Roos Column Clamps are available for rental with purchase option from warehouse stocks in principal cities.



BAKER-ROOS, INC.
602 W. McCARTY STREET
INDIANAPOLIS 6, INDIANA

★ JOB TALK ★

...About Safety

SHIRT-SLEEVE SAFETY TIPS in shirt-pocket format for construction workers are a new project started by the National Safety Council. Safety hints, presented in factual and humorous style, are contained in a convenient 8-p booklet printed in two colors and named "The Safe Builder."

The handy little booklet will be a monthly publication aimed directly at each construction man and arranged so that it can be handed to individuals and carried in the pocket. There will be regular accident prevention reminders through safety training hints that workers will read and enjoy.

Cartoons, straight talk, humor and homey philosophy are sprinkled throughout to show the reader how he profits by doing every job the safe way.

Following are quotations from the text of the first issue and reproductions of some of its cartons. For full information on obtaining "The Safe Builder" regularly for your men, contact the National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.



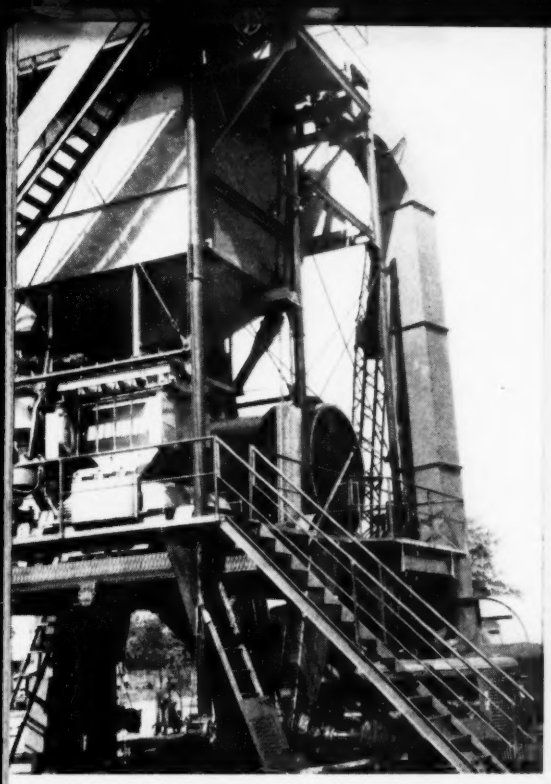
The cover sketch (above) uses some cheesecake to tell newcomers that questions on job procedure are more than welcome.

How D'ya Feel?

"Keeping fit is a man's first obligation—to himself and to his family. (He's not the only one who suffers if he's laid up.)

(Continued on page 18)

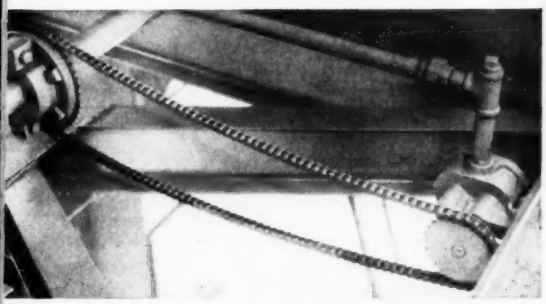
Coordinating Many Functions Via DIAMOND ROLLER CHAINS In Simplicity System Asphalt Plants



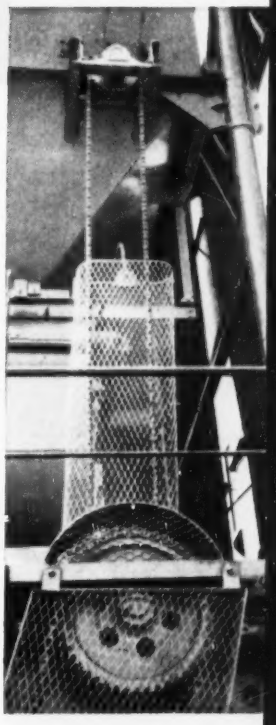
Simplicity system Asphalt Plant, Diamond Chain employed for all drives.



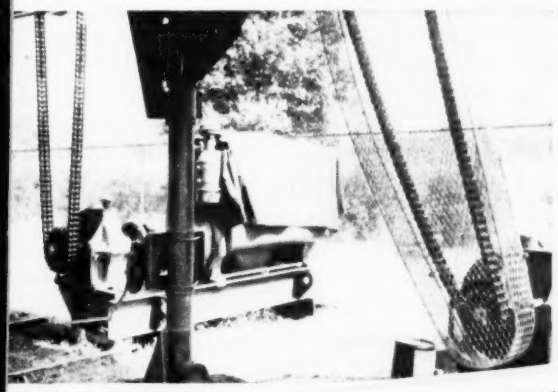
Positive long center drives,—one from Dryer extension shaft to cold elevator and one from countershaft to elevator headshaft.



Fuel oil pump drive. Could any other power transfer medium be as practical?



Diamond Chain Drive from mixer countershaft to double idler and from here to screen.



Two double-strand Diamond Chain Drives,—one to Dryer and the other to Tower.

• Operating outdoors subjected to the elements — with long center distance drives, Diamond Roller Chains provide the ideal method of correlating the many functions of the Simplicity System Asphalt Plant.

These chains insure positive non-slipping drives, high-efficiency, maintained speed ratios, easy installation and maintenance. Their great reserve strength and *uniform* high quality insure dependable long-life performance that machinery design engineers and users demand.

DIAMOND CHAIN COMPANY, Inc.
Dept. 418, 402 Kentucky Avenue,
Indianapolis 7, Indiana

Offices and Distributors in All Principal Cities

Refer to the classified section of your local telephone directory under the heading CHAINS or CHAINS-ROLLER

IMPORTANT DIAMOND ADVANTAGE—PITCH HOLE PREPARATION

Maximum rigidity of links insured by special pitch hole preparation for 100% effective bearing area of pin and bushing. Longer life, smoother operation.

SHOT-PEENING SINCE 1944

Diamond Chain has long recognized that certain types of internal stressing of chain parts would increase fatigue resistance. To this end, link plates have been specially processed and chain rollers and other parts have been shot-peened since 1944.

DIAMOND ROLLER CHAINS

"It sounded like an Explosion going off in my head"

said John W. Stark, Ironworker, employed at a large power plant construction project, by a subcontractor of Dravo Corporation



1. "The day it happened, I was brazing a plate to a copper wire beneath the turbine floor of the new power station.



2. "When I finished, I took off my goggles, turned my Skullgard around, and bent over to inspect the job.



3. "I just started getting up when something smashed into my Skullgard. It sounded like an explosion going off in my head.



4. "I was stunned by the blow, but the real shock came when I saw the steel chipping bar sticking in the Skullgard."

. . . Mr. Stark picked up the Skullgard that had toppled off, and with the bar still in it, walked to the Dravo dispensary on the job site. The nick in his scalp was treated, and as an extra precaution, Dravo took an X-ray of his head. He was back on the job in two hours.

There are good reasons why the M.S.A. Skullgard has what it takes to turn *accidents* into *incidents.* Steel wire screen reinforcing in the crown assures an extra margin of protection against "dead center" hits. High-strength, one-piece laminated plastic dissipates the force of the impact to safeguard the head, neck and spine of the wearer from the full force of the blow. Engineered head bands cushion the blow, permit non-slipping adjustment that means accurate fit. And M.S.A. Skullgards have the comfort-qualities that encourage full time hat use. Our bulletin gives complete details. Write for your copy.

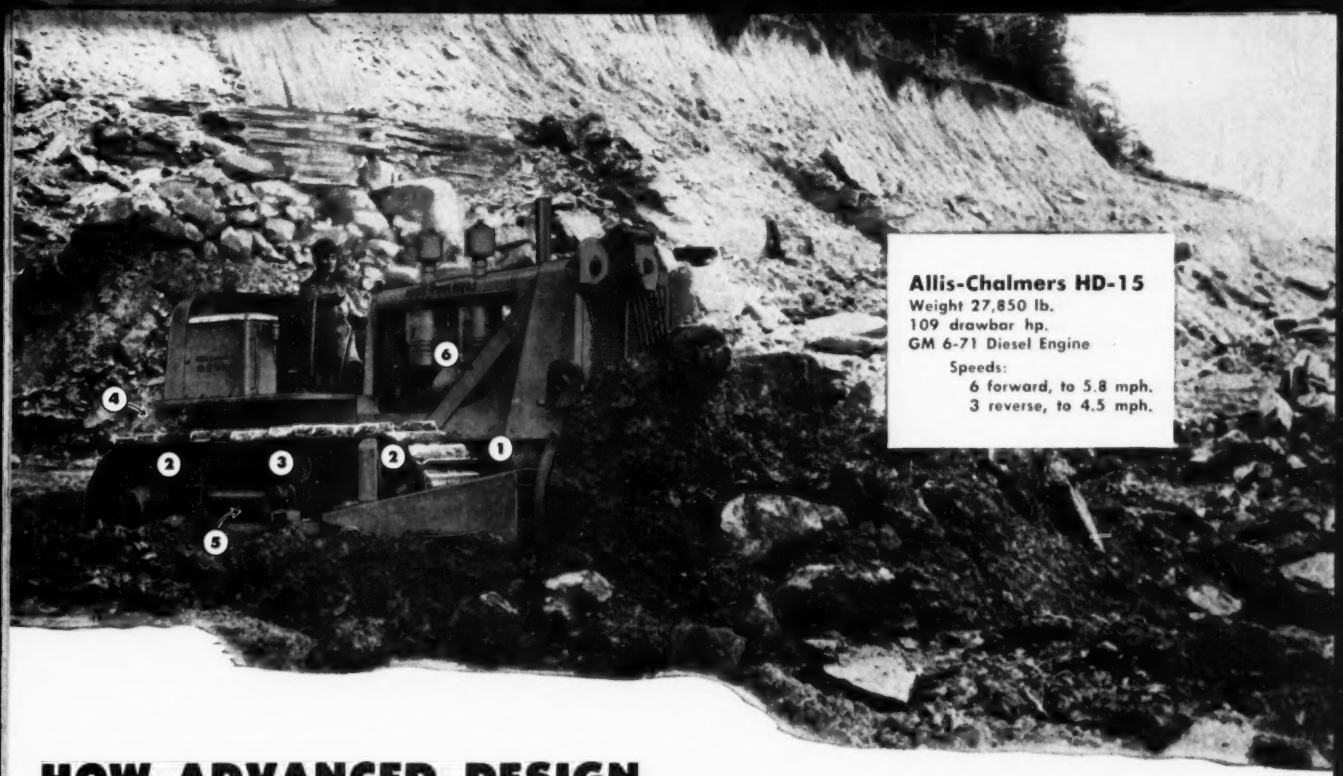
MSA
SAFETY EQUIPMENT HEADQUARTERS



Call the M.S.A. man on your every safety problem . . . his job is to help you.

MINE SAFETY APPLIANCES COMPANY
201 North Braddock Avenue, Pittsburgh 8, Pa.
At Your Service: 76 Branch Offices in the United States

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Toronto, Montreal, Calgary, Edmonton, Winnipeg, Vancouver, New Glasgow, N.S.
Representatives in Principal Cities in Mexico, Central and South America
Cable Address "MINSAF" Pittsburgh



HOW ADVANCED DESIGN

Makes Allis-Chalmers Tractors more dependable

These heavy-duty tractors have toughness and ease of servicing to match their outstanding performance ability. Here are some of the advanced design features that provide extra strength and protection — keep Allis-Chalmers tractors on the job more hours:

1. One-Piece, All-Welded Structural Main Frame . . . strong and firm without a single ounce of excess weight — absorbs all vertical and horizontal stresses.

2. Extra Large Idler and Sprocket eliminates rocking action, puts more track on the ground for greater stability and better traction.

3. Spring-Loaded, Positive Seal keeps dirt, moisture and grime from damaging truck wheels, idlers and support rollers . . . you lubricate them only once every 1,000 hours.

4. All-Steel, Welded A-Frame Track Stabilizer permits free track oscillation, yet keeps tracks rigidly in line and absorbs thrusts and twists from shock loads and working on uneven terrain.

5. Oil Enclosed Track Release Mechanism reduces track maintenance and breakage. An adjustable screw lock provides positive holding action that maintains adjustment at required setting.

6. Engine Not Used as Structural Member — no strain is transmitted to it. Engine weighs less per horsepower developed, because of 2-cycle design — has modern unit injection.

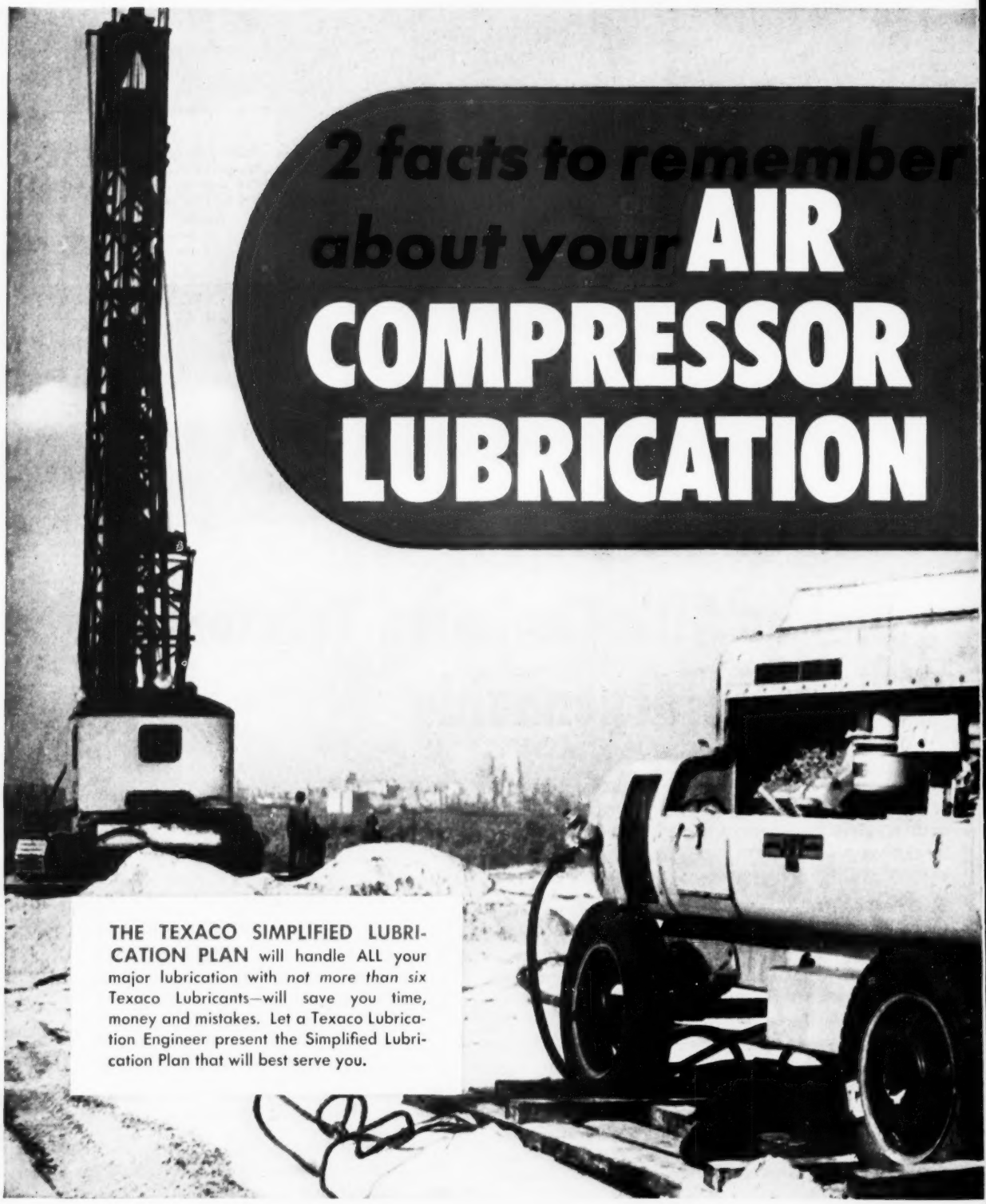
UNIT CONSTRUCTION SAVES SERVICE TIME

With Allis-Chalmers *unit construction*, major assemblies are easily removed without disturbing related assemblies. This brings real savings in time and money, puts tractors back to work faster. It assures better inspection and maintenance, too. Servicemen find it easy to remove major parts to correct trouble before damage develops.

Let your dealer tell you more about the toughness of Allis-Chalmers tractors, their time-saving unit construction — and their unequalled lugability and work power.

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.


2 facts to remember
about your AIR
COMPRESSOR
LUBRICATION
THE TEXACO SIMPLIFIED LUBRICATION PLAN will handle ALL your major lubrication with *not more than six* Texaco Lubricants—will save you time, money and mistakes. Let a Texaco Lubrication Engineer present the Simplified Lubrication Plan that will best serve you.
TEXACO
TEXACO

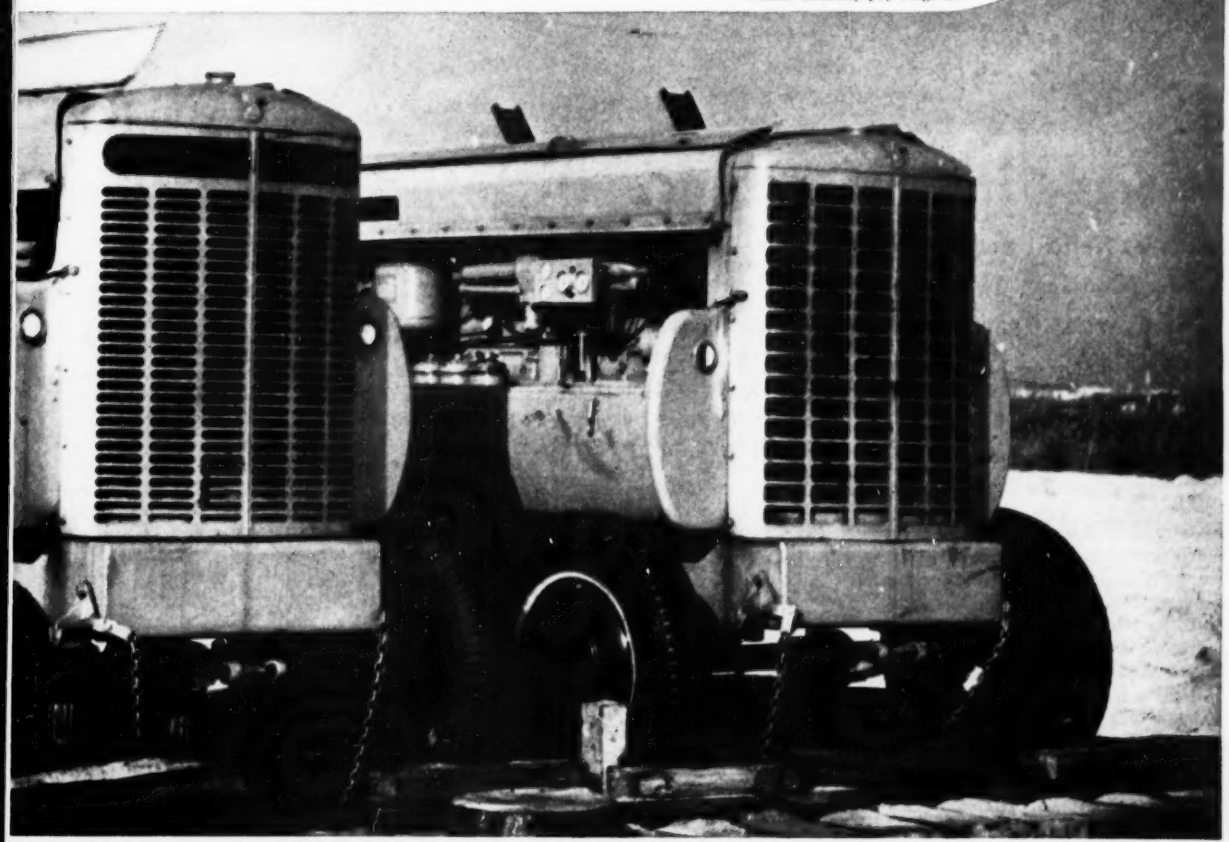
Fact No. 1: You have to lubricate according to the particular operating conditions. An oil suitable for normal service, for instance, will not be right where rusting conditions are bad. There is no *one* oil that can give top results under *all* conditions.

Fact No. 2: You can get an oil from Texaco that will assure clean, low-cost compressor performance *under your particular operating conditions.* There is a complete line of Texaco air compressor oils – covering every operating condition and every type and size of compressor.

For longer drill life, use *Texaco Rock Drill Lubricant EP.* It guards against wear, and protects against rust whether drills are running or idle.

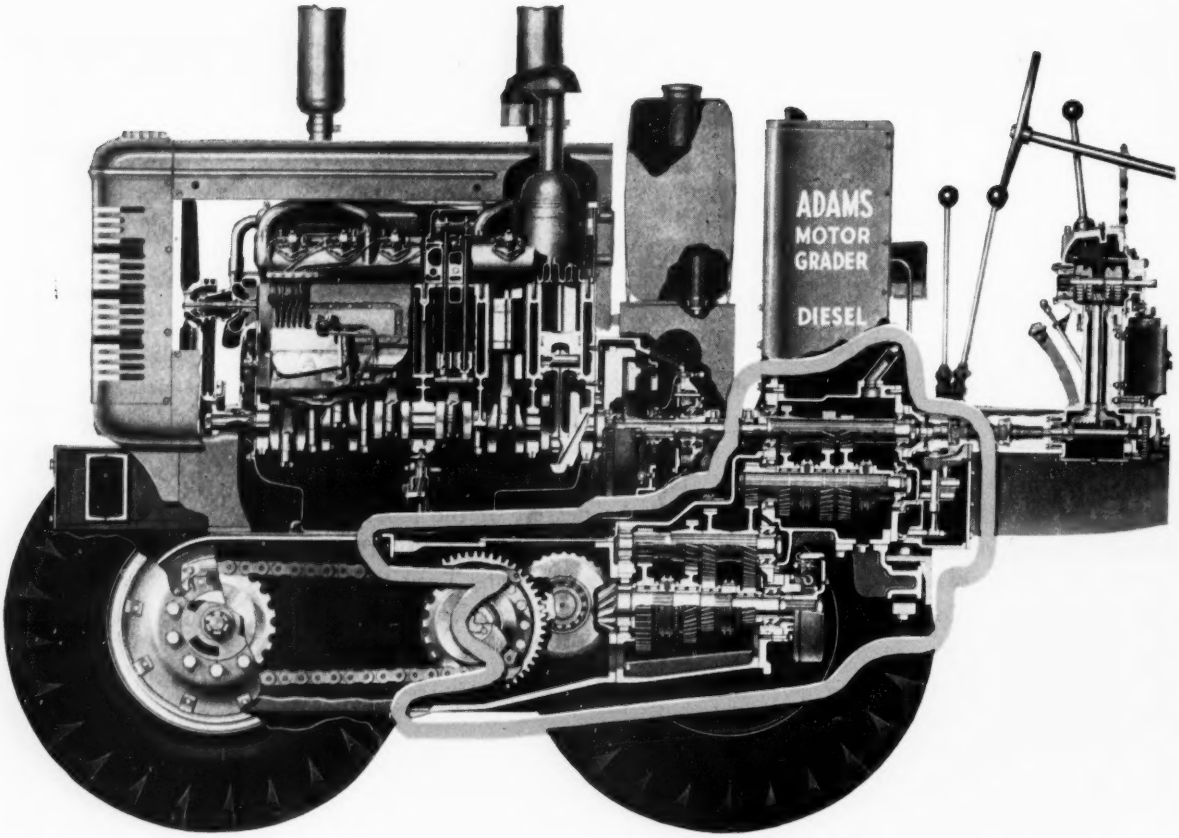
A Texaco Lubrication Engineer can help you step up efficiency and cut maintenance costs for all your equipment. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

Photo Courtesy Joy Mfg. Co.



Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT



Adams Offers New Constant-Mesh Transmission

Features Helical Gears, Anti-Friction Bearings Throughout and Creeper Gear Option

All Adams 100 h.p. motor graders now feature a new Adams-built constant-mesh transmission and a new final drive which have more operating advantages, more quality and longer life built into them than ever before put into any motor grader.

All transmission gears (excepting low) are helical and are shaved and hardened for quietness, maximum tooth contact and long life. All free-running gears turn on roller bearings. Gear shifting is easy and positive due to direct connection between shift levers and transmission. The final drive has the full-floating rear axle which characterizes all Adams motor graders. All gears, shafts, bearings, housings, etc. throughout transmission and final drive are built with a safe margin of strength and durability.

8 Forward and 4 Reverse Speeds

The new transmission has 8 forward speeds found in all Adams motor graders furnishing a wide range of operating speeds plus a high transport speed of 25 to 26 m.p.h. New are 4 reverse speeds, ranging from approximately 1½ to 13½ m.p.h. which save time on contract work and backing to buck snow drifts.

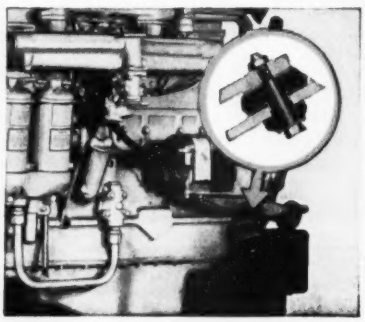
Creeper Gears New Optional Feature

To permit extra-low speeds, desirable on some work, the new Adams transmission is designed to accommodate "creeper" gears which provide 3 speeds ranging from approximately ¼ m.p.h. to 1¾ m.p.h. These are in addition to the standard 8 forward speeds. The "creeper" gears may be ordered as original equipment or may be installed at any time in the field at nominal cost.

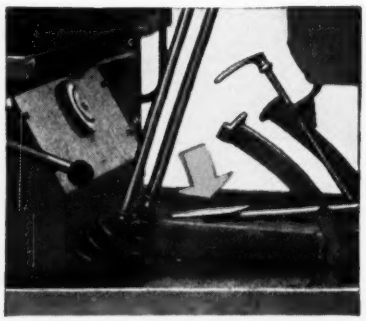
Dual Braking System Standard

The transmission has an external brake with internal expanding shoes which are actuated by the service brake pedal through the same hydraulic system which operates the wheel brakes. Braking efficiency is practically doubled. The same brake serves as a parking brake when set mechanically by parking brake lever.

New Transmission Also Brings These Improvements



Engines are rubber-mounted. Engine vibration is not transmitted to grader frame or operator's cab. This reduces operator fatigue and prolongs engine life.

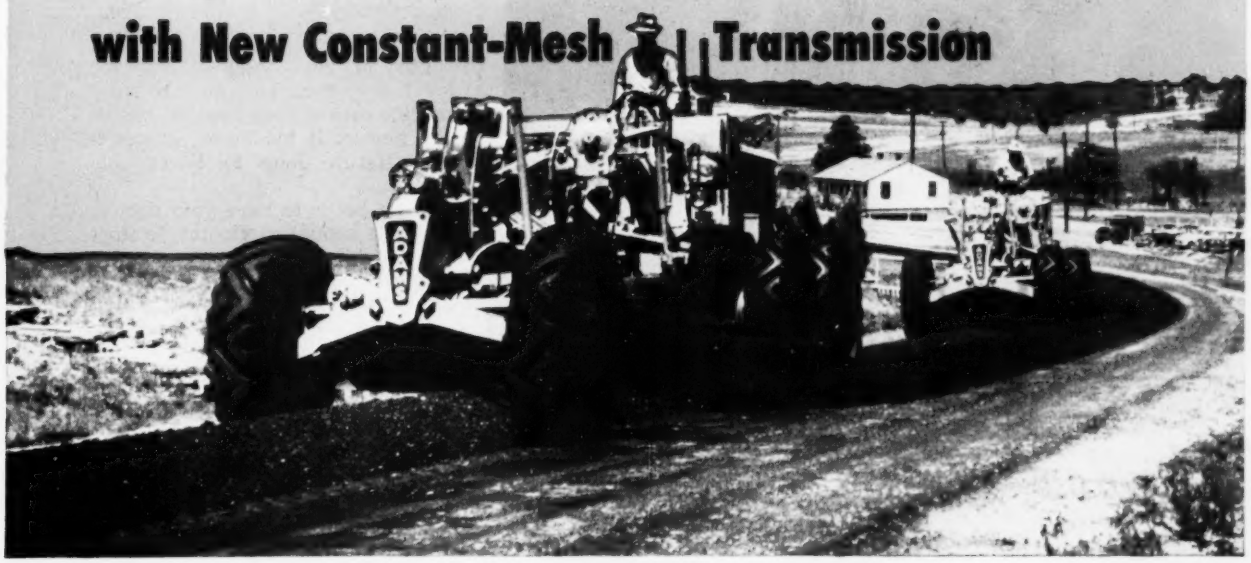


Foot accelerator permits operator to regulate travel speed as with a truck. Valuable in traffic on overland travel. Operator uses accelerator or hand throttle when working.

Contractor Praises

ADAMS Motor Graders

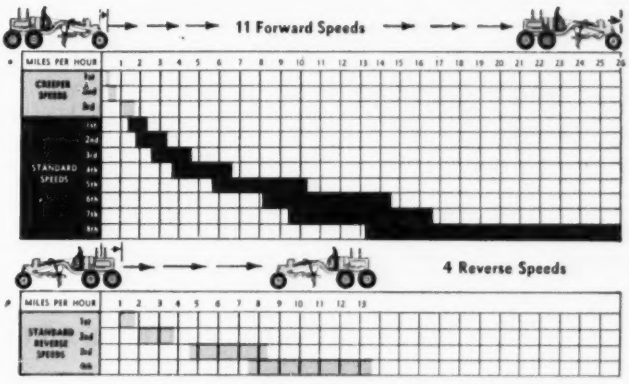
with New Constant-Mesh Transmission



The Missouri Petroleum Products Co. of St. Louis are black-top contractors. Recently they put four 100 h.p. Adams Motor Graders with the new Adams transmission to work on scarifying old asphaltic concrete pavements and mixing and laying oil mat as pictured above. Mr. S. A. Whitmore, Const. Supt. is enthusiastic about their performance—their wide range of speeds—the high reverse speed and the fast transport speed. Further he says "they have more power and traction; will push larger windrows at higher speed which results in more work per day."

Ask your local Adams dealer to show you one of these new, powerful machines. Phone him today.

J. D. ADAMS MANUFACTURING CO., INDIANAPOLIS, IND.



Charts above show the range of Adams 8 forward speeds and 4 reverse speeds which are standard in the new Adams constant-mesh transmission. At top are shown the 3 "creeper" speeds which are optional.

Make your next motor grader an **ADAMS**



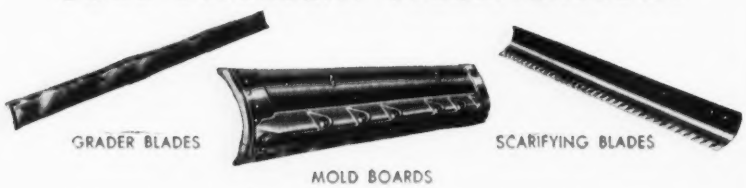
HIGH QUALITY MUD SLINGER!

To a contractor, keeping a gimlet eye on grading problems is as vital as the weather. A Shunk blade on his 'dozer assures him a high quality mud slinger which can take punishment almost forever.

To the original equipment producer, the Shunk blade, as an integral part of his product, means the assurance of almost a century of development. Shunk's modern production facilities, quality product and reputation *guarantee* favorable competitive relationships.

Need a high quality mud slinger? We'll gladly provide you with full information.

3000 DIFFERENT SPECIFICATIONS



WRITE FOR OUR NEW CATALOG

Shunk MANUFACTURING COMPANY

In Our 99th Year

BEST BLADES MADE

BUCYRUS, OHIO

JOB TALK . . .

Continued from page 10



Lots of guys think they're so tough they don't have to take reasonable care of their health—but if you neglect it too much, it won't take Nature long to lower the boom!

"Best bet is to have your doctor give you annual check-ups, to stop any trouble before it gets a good start. Even more important, follow sensible health rules daily.

"Start the day right with a clean body and clean, right-fitting clothes. Wear safety shoes and goggles if the job calls for 'em—and don't forget the hard hat, if things might fall on you.

"Right food is important to keep the old boiler going, so try to keep a good balance. (Meat and potatoes alone won't fill the bill.) Include fresh vegetables and fruit, milk, eggs, fish, poultry or cheese—and some fat.

"Get some play and plenty of sleep.



"Drink plenty of water and, in hot weather, take added salt to replace what you've lost in sweat—unless your doctor has prescribed a salt-free diet."



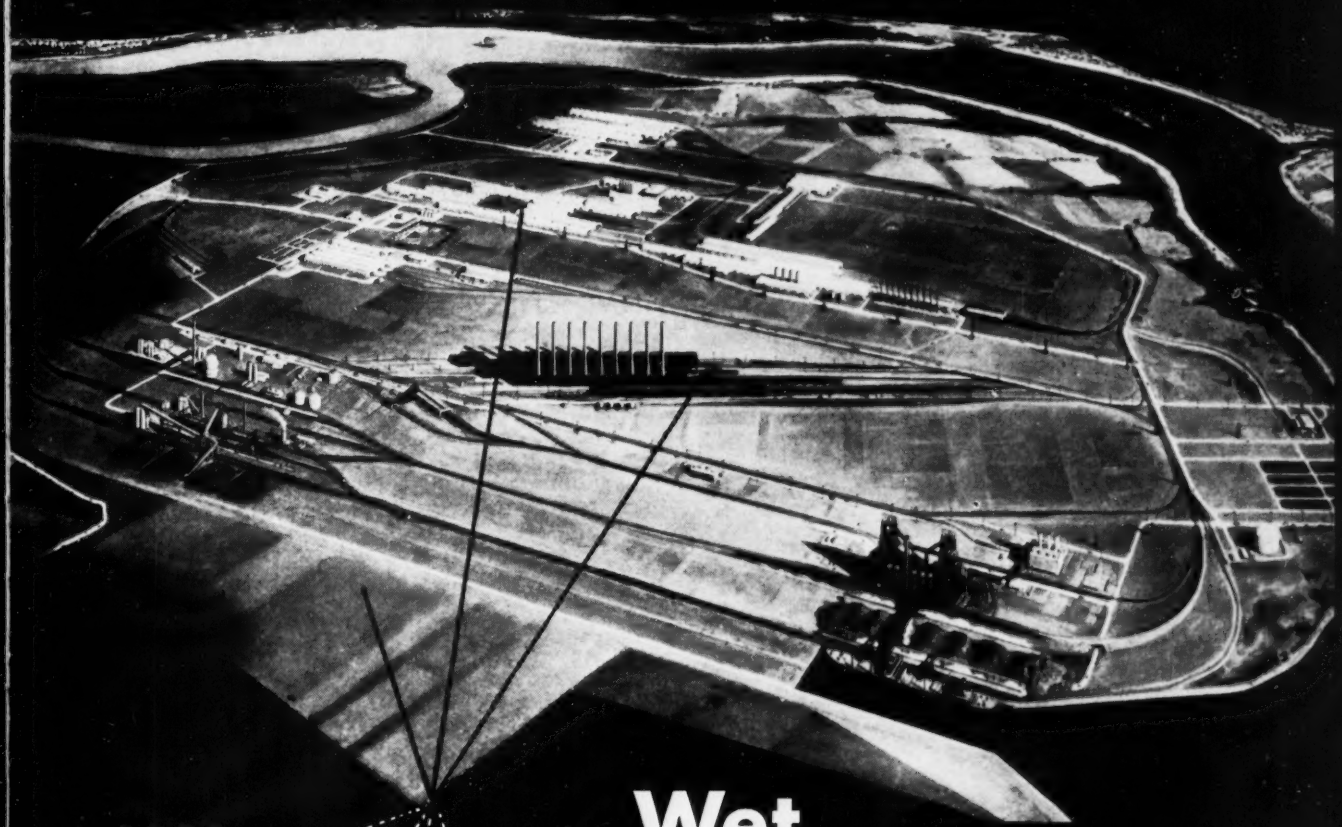
Horse Play

"Playing jokes on a green worker may seem like fun—to a lamebrain—but horse play on the job is a sure road to accidents.

"Sending a new hand for a sky-

(Continued on page 22)

Fairless Works on the Delaware River—
Foundation, Grading and Dredging Contractor:
Walsh-Perini-Groves-Slattery
Companies, Morrisville, Pa.



3900 acres, most of it Wet

Pumping was Problem #1 when it came to turning the farmlands of Morrisville, Pa. into the Fairless Works for United States Steel Corporation.

Moretrench Wellpoint Systems—by the mile—expertly planned, expertly installed, soon had the water under control. Excavation for coke ovens, power plant, blast furnaces, slip areas and other foundations went ahead on the double—IN THE DRY!

Twenty months later this enormous steel plant began production—a magnificent testimonial to the teamwork of the construction industry. From brains to brawn, Moretrench salutes every member of that team!

Moretrench Corporation

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New York 6

4900 S. Austin Ave.
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7701 Interbay Blvd.
Tampa 9, Florida

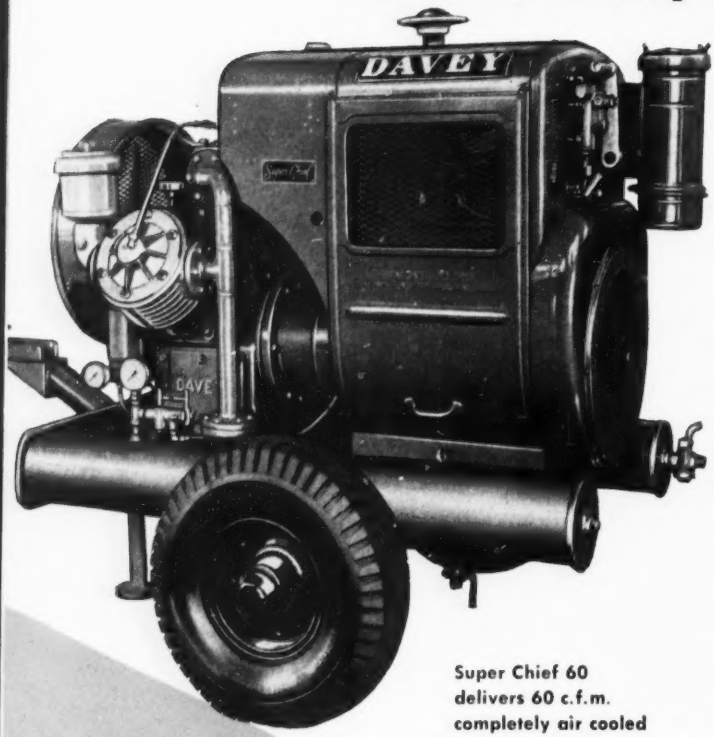
315 W. 25th St.
Houston 8, Texas

Rockaway
New Jersey

Canadian Representative: Geo. W. CROTHERS Limited, Toronto, Ontario

DAVEY *Super Chief*

. . . the lightweight champion with the heavy-duty work punch!



Super Chief 60 delivers 60 c.f.m. completely air cooled (engine and compressor)

There are more 1951-'52-'53 Davey Super Chief 60s in service today than any other 60 c.f.m. compressor built in the same years.

The reason—here is the world's finest, economically-priced 1250 lb. compressor designed for heavy-duty service. Features include automatic controls, clutch between engine and compressor, full force feed lubrication, built-in unloader system, air receiver integral with frame . . . highest speed spring-mounted chassis and tow bar ever placed on a compressor. Super Chiefs can be towed behind any truck or passenger car . . . easily moved by one man.

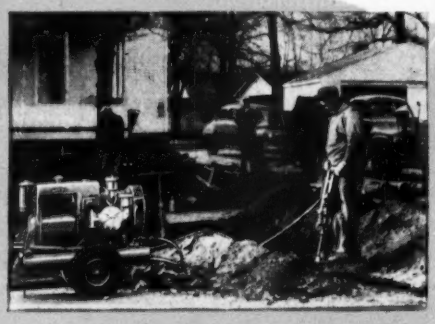
Like the famous bigger Daveys, the Super Chief 60 has *Permanent Peak Efficiency Valves.* These never carbon or foul. They guarantee the utmost in operating satisfaction, low cost operation, long life.

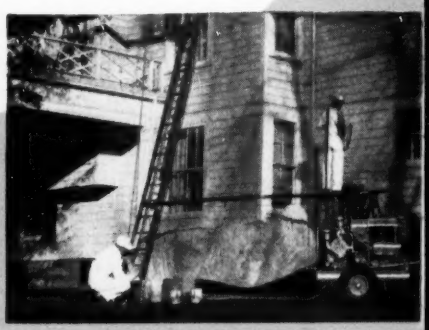
A-7309



▲ . . . ideal for maintenance and repair.

▼ . . . perfect for sewer and plumbing jobs.





▲ . . . for spray painting and 1,000 plus one big and little operations.

DAVEY

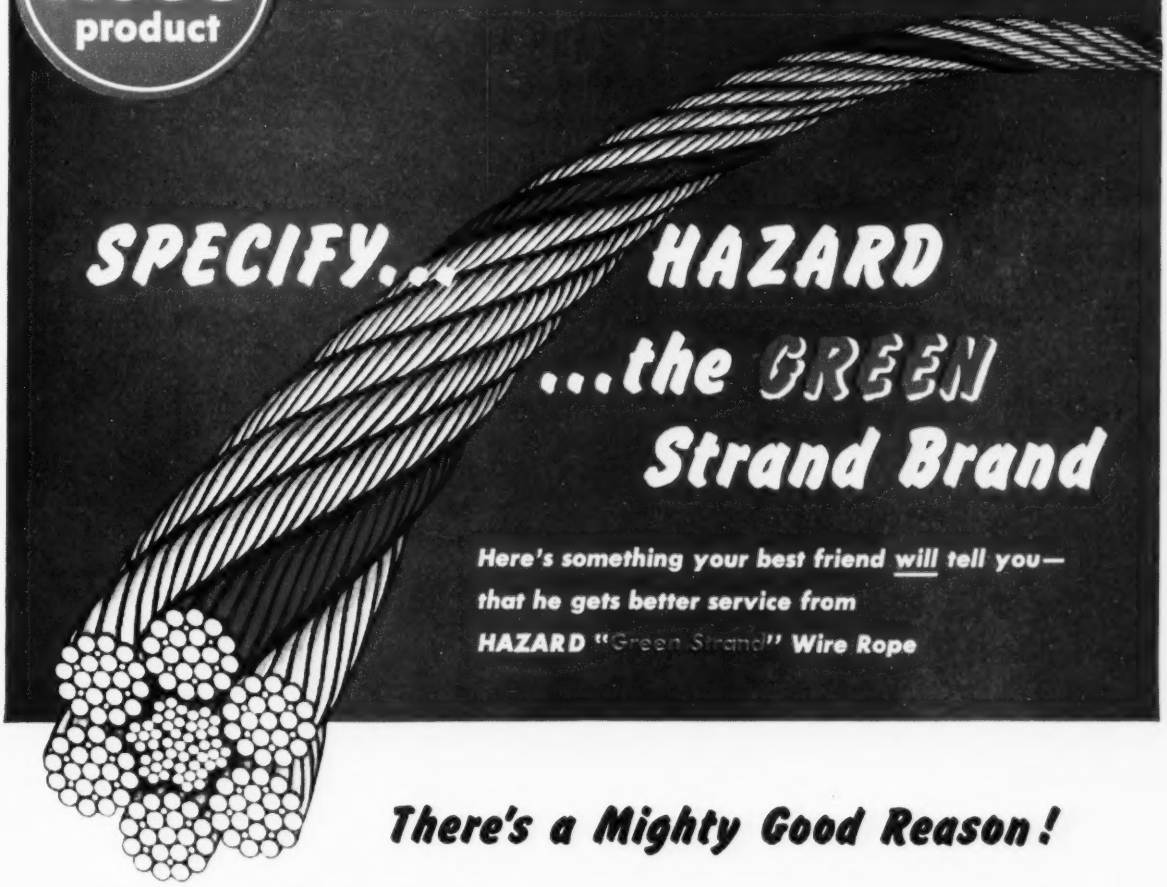
pioneers of "air-cooled air"

Davey manufactures portable and industrial compressors of 60, 105, 160, 210, 315, 500 and 600 c.f.m. capacities; "Auto-Air" truck-mounted compressors; Mobile Machine Shops and Field Service Units.

DAVEY COMPRESSOR CO. • KENT, OHIO

an ACCO product

LAY-SET Preformed WIRE ROPE



SPECIFY... HAZARD ...the GREEN Strand Brand

Here's something your best friend will tell you— that he gets better service from HAZARD "Green Strand" Wire Rope

There's a Mighty Good Reason!

● Sure, HAZARD is made to standard specifications but there is one thing that tells you the moment you look at it that it's the best wire rope made—and that's the GREEN STRAND.

It will cost you more in the long run if you just order wire rope—where you can get it the cheapest. Just like anything else, the experience and integrity of the manufacturer are the real reason why you get longer service and better value from HAZARD Green Strand.

HAZARD Green Strand is made from the best materials, with precision, by oldtimers in the wire rope business. Then only certain constructions, carefully checked in use, are recommended for specific jobs you do. It's this combination of quality wire rope and correct recommendations that saves you money on all your wire rope purchases.

● Don't just ask for wire rope—specify, *and get*, HAZARD Green Strand Preformed Wire Rope. See your local HAZARD distributor or write our Wilkes-Barre office today for recommendations covering the equipment you operate.

makers of ACCO Registered WIRE ROPE SLINGS

ACCO

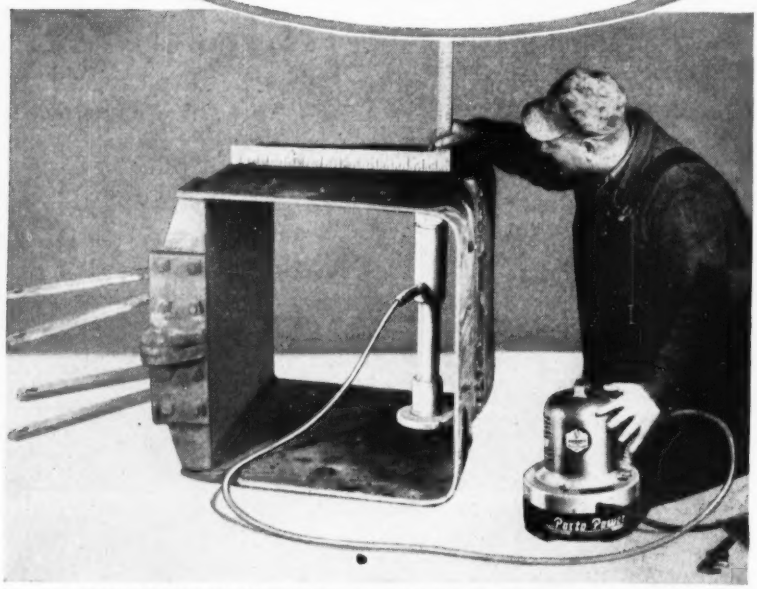
TRADE MARK

HAZARD WIRE ROPE DIVISION
AMERICAN CHAIN & CABLE

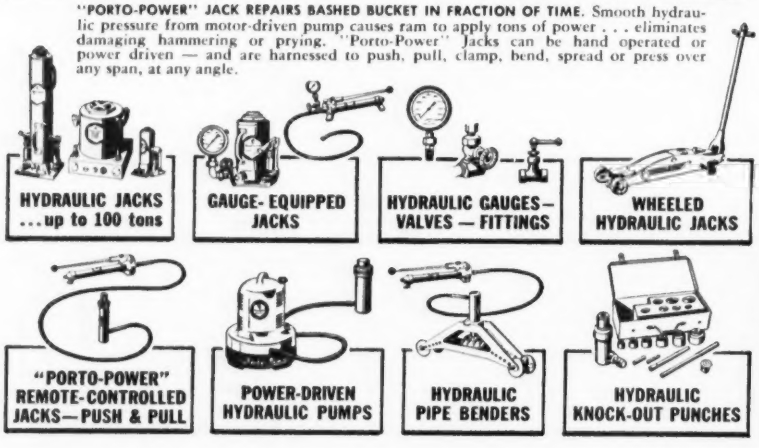
Wilkes-Barre, Pa., Chicago, Denver, Houston, Los Angeles, New York, Odessa, Tex.
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Pick the right jack for the job

...from the world's most complete line of hydraulic jacks



"PORTO-POWER" JACK REPAIRS BASHED BUCKET IN FRACTION OF TIME. Smooth hydraulic pressure from motor-driven pump causes ram to apply tons of power . . . eliminates damaging hammering or prying. "Porto-Power" Jacks can be hand operated or power driven — and are harnessed to push, pull, clamp, bend, spread or press over any span, at any angle.



YOU GET ALL THESE HYDRAULIC TOOLS ONLY FROM BLACKHAWK

BLACKHAWK

Save buying time when you need hydraulic equipment. Specify Blackhawk—and be sure you'll get the hydraulic tool that will match your requirements exactly. Order from leading supply houses. Write for free catalogs. Products of Blackhawk Mfg. Co., Dept. J2363, Milwaukee 1, Wisconsin.

JOB TALK . . .

Continued from page 18

hook or a left-handed monkey wrench may seem harmless—but such silly stunts can lead to serious results. Besides, the newcomer has a right to expect better treatment from grown-ups. Best way he can learn to be a safe and efficient worker is for him to see that older hands are that way, too.

"Sane men like fun—but they know there's a proper time and place for it. The crude humor that exposes a fellow worker to ridicule —or even serious injury—may have a result that's more tragic than funny."

Nuggets:

TAKE TIME TO BE SAFE

"Housekeeping is not only the job your wife does in making your home pleasant. It's a job each of us must do all the time—if we're to be safe and efficient.

"If we make it a practice to pick up our tools and materials—underfoot and overhead—the job will be done faster and better, and one of the more serious causes of construction accidents will be removed."

ACCIDENTS ON THE JOB

"Accidents on the job killed 2,500 construction workers in the U. S. in 1951, while 230,000 were injured. On the other hand, several big outfits completed projects involving millions of man-hours without a lost-time injury. It can be done! Support the safety program!"

General Gets Picked



FORMER CHIEF of Army Engineers, Lt. Gen. Lewis A. Pick, (Ret.) has been elected vice-chairman of Georgia-Pacific Plywood Co.—U.S. Army photo



there's a *BIG* difference ...in this 3/4 yd. shovel!

Look beyond the dipper size when you investigate your next 3/4-yard shovel. Shovels may be rated the same, may even look alike, but that's where similarity ends when you look at the 3/4-yard Lorain TL-25.

Look into the cab to see if power flows directly and efficiently from the engine to the point of use, as it does on the "TL-25" . . . or *does* power wear itself out in long gear trains or in bending itself around corners?

Look to see if it has a great quantity of duplicate and interchangeable parts . . . does it have "packaged components" to permit quick switching of all major components. The "TL-25" *does* have these for easier service and quicker maintenance . . . another reason why it stays on the job longer.

Look at what it does on the job. *Dirt in the truck* means more than a whole slew of "talking-points". If you believe *actions speak louder than words,* you'll like the "TL-25" because it is on performance that it really shines. Your nearest Thew-Lorain distributor will be glad to prove these statements.

3/4 yards of power *plus* . . .

Whether gas or diesel, it goes to work directly . . . tears into the job . . . and consistently turns out profit-earning yardage.

3/4 yards of speed *plus* . . .

You can capitalize on every bit of "TL-25" power because in operation it responds with lightning speed, has high acceleration that kills "drag", and is a muscle-saver for the operator.

3/4 yards of endurance *plus* . . .

Anti-friction bearings, oil-enclosed gears, 5 identical shoe clutches, drop-forged hook rollers . . . and other items of highest quality materials and workmanship assure "TL-25" stick-to-it-iveness on the job.

3/4 yards of selection *plus* . . .

No other machine in *any* class offers such a selection of booms and mountings to hit your job right-on-the-button. Select from 4 crawler sizes, 7 rubber-tire mountings, 7 interchangeable booms.

THEW LORAIN® TL 25

THE THEW SHOVEL CO., LORAIN, OHIO

TAKE THE GUESSWORK

out of your truck buying



Six-wheelers to meet tough schedules. New Model RF-210 Six-Wheel Truck with Super Red Diamond engine. Famous Comfo-Vision cab. Nine six-wheel models, GVW ratings 22,000 to 45,000 lbs.

International Trucks are proved all 3 ways

You take the guesswork out of truck buying when you buy International trucks. They are proved all three ways to give you the performance you want at the *lowest* cost:

1. **Proved Before They're Built.** Before any International truck model goes into production, the right balance between design, costs, and performance is developed and proved at International Harvester's new truck Engineering Laboratory. The results—longer truck life, reduced operating and maintenance cost—give you more truck for your dollar.
2. **Proved After They're Built.** Economy, performance, and stamina of Internationals is proved again at the "Desert Whipping Post," 4000-acre Proving Ground in Arizona, under the most difficult operating conditions.
3. **Proved In Service.** In 1952, America's most cost-conscious truck operators bought 58% more heavy-duty Internationals than any other make, 27.3% of all heavy-duty trucks sold. Every new International truck, from ½-ton pickups to six-wheel off-highway models, embodies the advanced engineering principles that have kept Internationals the heavy-duty sales leader for 21 straight years.

See them. Compare them. Drive them. Ask your nearest International Dealer or Branch for all the facts.

Select the International That's Right for Your Job from America's Most Complete Truck Line. 168 basic models from ½-ton to 90,000 lbs. GVW rating . . . 307 new features . . . 29 engines, with widest practical choice of gasoline, LPG or diesel power, available to give the right power for the job . . . 296 wheelbases . . . Transmissions and axle ratios to meet any requirement . . . Thousands of variations for exact job specialization.

INTERNATIONAL HARVESTER COMPANY • CHICAGO

International Harvester Builds McCormick Farm Equipment and Farmall Tractors . . . Motor Trucks . . . Industrial Power . . . Refrigerators and Freezers

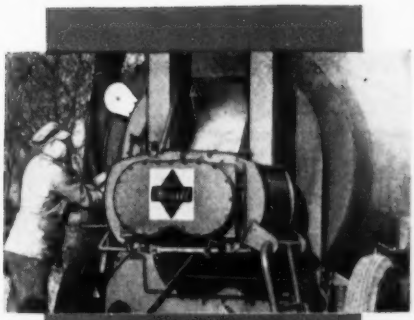
Better roads mean a better America

INTERNATIONAL TRUCKS

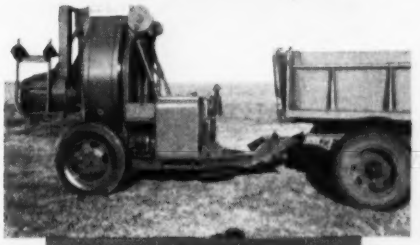
"Standard of the Highway"



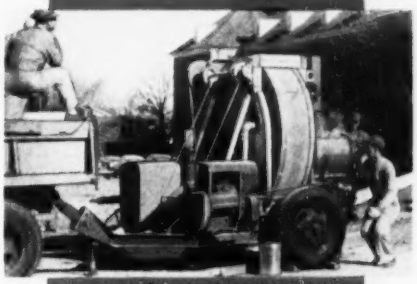
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Mixall
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MODEL 804



For parking lots, runway floors . . . on-the-job drying of aggregates, complete control of mix.



For playgrounds, tennis courts, roads and streets . . . scattered jobs . . . variations of mixes.



No worry time with Mixall. Operator is hitched to truck for driver, sidewalks, other small jobs.

. . . THE NEW B-G Mixall

MIXES ALL THE HOT PATCH YOU NEED, ANY TIME, ANYWHERE, ANY WEATHER

Now, the new Barber-Greene Mixall gives you the opportunity to offer high quality bituminous paving for driveways, sidewalks, service stations, industrial plants, parking lots . . . and other "black top" jobs at new low costs.

The Mixall, a completely new, compact and portable small-job maintenance and paving mixer, will produce up to 5 t.p.h. of any type hot mix . . . up to 10 t.p.h. of cold mix . . . will produce low slump Portland cement mixes. Built to be towed behind the aggregate truck for on-the-spot mixing, the Mixall is just as well suited for central plant or stock pile operation. The Mixall can work in any weather . . . even drying frozen aggregates.

Think of what you could do with the new B-G Mixall in your territory. Then see the Mixall at your first opportunity . . . or write for full information.

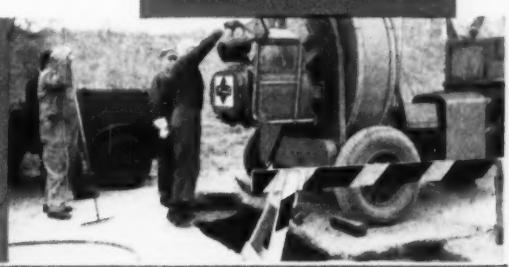
THE ONLY SMALL JOB MAINTENANCE MIXER WITH...

- ROTARY DRUM DRYING: The same principle used in largest B-G Continuous Dryers.
- TWIN SHAFT HEATED PUGMILL: "Kneading" action assures even coating of every aggregate particle.
- POWER SKIP HOIST: Only 14" high for easy charging.
- HIGH DISCHARGE: Can discharge directly into place, into wheelbarrows or gas buggies.



"Stitch-in-time" maintenance prevents major break-ups; the Mixall works in any weather.

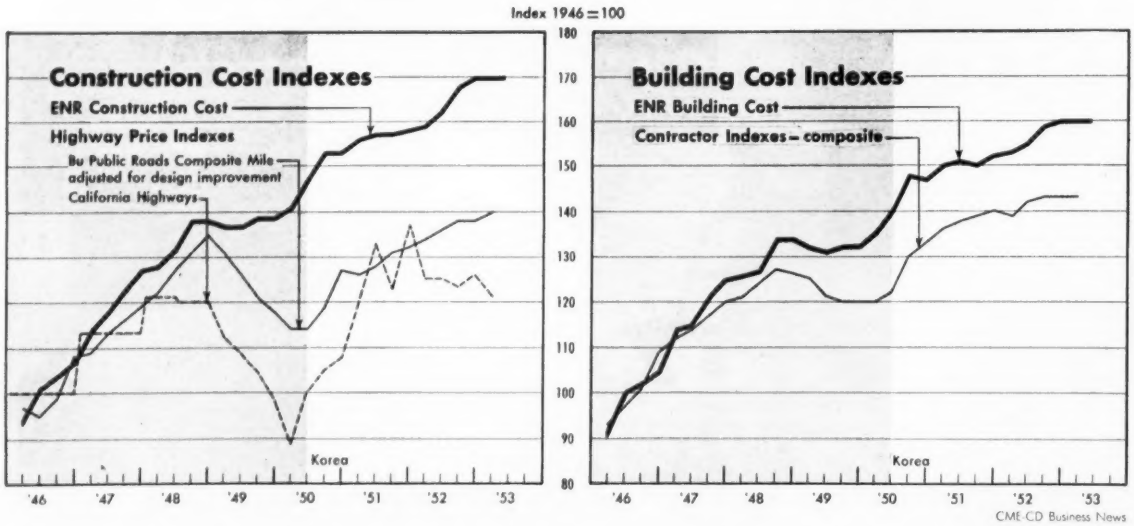
Resurfacing busy crossings, Mixall's compactness allows minimum traffic interference.



Barber-Greene

Aurora, Illinois, U.S.A.

It's Your Business . . .



Costs Rise More Than Prices . . . Watch That Productivity!

Construction costs continue to enjoy their tamest climb since 1949, but they also continue to rise. In the last ten months the construction cost index (based on common labor) is up only 2%. The building cost index (based on skilled labor) is up only 1%. The rise for the year since last June is 5.6% and 3.4% respectively. Average prices of cement, lumber and steel are actually down about 1%, so the cost of labor is the force driving the indexes up.

But these June values of 593 for Construction Cost Index and 427 for the Building Cost Index (compared with a 1913 value of 100) are at their all time highs, and there is no prospect now in sight for them to come down. How much more they will go up depends a lot on the outcome of the current pitched battles over new wage agreements. A steel price increase is in the same state and will, of course, affect the index.

But the price indexes are holding to an even narrower range than these primary costs. The building contractor index average is up only 0.7% in 9 months (June '52 to March '53). This is an average of Turner, Fuller, Austin, Aberthaw, Fruin & Colnon indexes. In this same period the ENR Building cost index climbed four times as much, or 2.9%. This means higher job productivity; otherwise it could mean a squeeze on profits. It certainly means that tight job control is needed to prevent cost leaks.

The highway bid price indexes, as shown in the chart above, are also running below the construction cost trend. Here, too, high job productivity is needed to maintain a strong competitive position without sacrificing that old earned income.

* * *

Prices Rise Some More For Construction Machines

On top of their March rise, construction machinery prices in April pushed 1.1% to a new high of 128.6, as measured by the Bureau of Labor Statistics wholesale price index based on 1947-49 average as 100.

This makes a 1.8% increase since removal of price controls in February and 3% since April last year.

The biggest price rise for the month, 3.1%, is for mixers and pavers, with tractors following at 1.5% and shovels, cranes and draglines next at 1.3%.

The smallest increase, 0.2%, is for scrapers and graders. Machinery for mounting on tractors is up 0.4% and specialized construction machinery averages 0.7% higher.

Portable air compressors and air tools hold at their January 1951 rates.

For the year tractor prices have climbed highest, to 135.2, a rise of 5.7%. Machinery for mounting on tractors is next, up 3.4% to 131.8. Power cranes and shovels prices are up 2.6% to 126.9, with mixers and pavers up 2.7% to 121.3. Specialized construction machinery is up 2.8% to 123.1, but prices of scrapers and graders are only 0.4% higher for the year with their April price index set at 128.0.

Contractor Failures

Batten down the hatches! Tie up loose ends! Dun & Bradstreet says contractor business failures are 19% higher than last year, with liabilities up 36%.

But the Surety companies say their losses on bonded contractors are leveling off, some say losses are running lower and no company reports an increase.

However, construction materials and labor costs are still rising while bid prices appear to be holding to smaller or no rises, or moving lower. So keep up that productivity!

(Continued on page 30)

Biggest Caterpillar Scraper built...*the new No. 90!*



HERE's an agile giant with a huge capacity — the *big* new Caterpillar No. 90 Scraper for *big* jobs. Pulled by the D8 Tractor, the No. 90 handles 21.2 cu. yds. struck, 27 cu. yds. heaped.

Feature after feature make this tough new earthmoving tool a great buy for you. Bowl and cutting edge angle are designed for fast, easy loading. The "stinger" bit digs cleanly in any soil. Self-sharpening cutting edges are reversible for longer life. Large-size, low-pressure tires increase flotation and lessen draft. Low center of gravity provides excellent stability. Push block extends well to the rear to avoid damage to rear tires by pusher tractor. High apron lift assures positive, controlled dumping, even of sticky materials. And 60% of the loaded weight is on the rear wheels for easier steering. No detail has been overlooked! As a result, they all add up to *more* yardage at *less* cost — the kind of production that means money in your pocket.

With the squeeze on profits from constantly increasing expenses, you'll find it good business to put this big producer in your line-up. Like all Caterpillar machines, it's built for long life and backed by excellent service from your Caterpillar Dealer. He knows equipment — he knows earthmoving. Let him demonstrate what the No. 90 can do for you!

CATERPILLAR, PEORIA, ILLINOIS

CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL ENGINES
TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT



Winslow Filters now protect Autocar gasoline engines

One of the oldest and most respected names in the truck manufacturing industry is that of The Autocar Company. Autocar's reputation for superlative performance is too precious to be endangered by the use of anything less than the most dependable of accessories as standard equipment on its celebrated gasoline engines. This was especially true in selecting filters, because absolutely clean lubricating oil is imperative in the protection of every engine's moving metal parts. The filters *must* be able to remove sludge, abrasives and moisture, to neutralize acids, and to maintain *full-flow* filtration (keeping *all* the oil clean) at all times. * * * You can understand the pride and pleasure with which the makers of Winslow Filters announce their selection to do this important job. The confidence placed by a pioneer such as Autocar in another pioneer such as Winslow may justify your having equal faith.

WINSLOW FILTERS

Winslow Engineering Company 4069 Hollis Street • Oakland 8, California

OPERATION:

"PLANT RELOCATION"

by Roger Sherman with ROGER TRAILERS

It was a super-colossal "moving day" for Hamilton Standard Division, United Aircraft Corporation.

Roger Sherman of E. Hartford, Conn., tackled the job. 4000 machines were moved by a circuitous route to a new plant location 15 miles away.

Specialized rigging and hauling experience, plus the strong "back" of his new special-built Rogers 135-ton low-bed trailer, helped "turn the trick."

One huge plating machine 45 feet in length loomed up as a tough "nut to crack."

Original estimated moving time was 20 days. By handling it in one piece it was moved in 2½ days.

We are certain Rogers Trailers will meet your everyday requirements and handle those extra-tough jobs that often come your way.

We'll be glad to chat with you.



Little tots along the moving route are awed by the sight of th towering press and the huge trailer.

The 95-ton hot-form press is loaded on the big Rogers 135-to DPG Power-Lift Detachable Gooseneck Trailer.

DISTRIBUTED IN FORTY-SEVEN STATES AND EIGHT CANADIAN PROVINCES

ROGERS HEAVY DUTY Gooseneck Trailers

EXPERIENCE builds them... PERFORMANCE sells them...



ROGERS BROTHERS CORPORATION

ALBION, PENNSYLVANIA, U. S. A.

Export Office

50 CHURCH ST., NEW YORK 7, N. Y., U. S. A. • CABLE ADDRESS: BROSITES

Thermoid quality helps assure Caterpillar® performance





Long wearing, dependable Thermoid Clutch Facings are being assembled.

Caterpillar specifications for original equipment are exacting. That's why you'll find Thermoid Clutch Facings on their D2 and D4 Diesel Tractors ...and Thermoid Hydraulic Hose in a number of Caterpillar applications.

In addition to woven and molded Clutch Facings and Hydraulic Hose, Thermoid also furnishes Caterpillar with Radiator Hose, and a variety of other rubber products and friction materials.

Superior engineering and manufacturing facilities, plus close personal attention and cooperation on individual problems, makes Thermoid the choice, for certain production items, of Caterpillar, and other leading manufacturers in many fields.



Tough, flexible Thermoid Hydraulic Hose is being attached to a Caterpillar D4 Tractor.

Thermoid

Thermoid Company
Industrial Friction Materials Division
Trenton, N. J.

IT'S YOUR BUSINESS . . .

Continued from page 26

The first quarter failures listed by D&B for contractors on heavy construction number 15, up 37%. But their liabilities are $1,785,000, an increase of 201%.

Building contractor failures are up 16%, their liabilities 31% higher, while subcontractor failures are up 19% and their liabilities are only 9% higher.

SOME BIG CONTRACT AWARDS OF THE MONTH

Ebasco Services, Inc., 2 Rector St., New York City design and construct hydro-electric plant, Upper Fifteen Mile Falls on Connecticut River, Littleton, N. H. for New England Power Co., 441 Stuart St., Boston, Mass., $45,000,000.

J. F. Prichard & Co., 908 Grand St., Kansas City, Mo., design and construct electric power plant, warehouse, switchgear house and gas regulator house near Denver City, Tex., for Southwest Public Service Co., 3rd & Polk Sts., Amarillo, Tex., $7,350,000.

L. E. Early, Inc., Union National Bank Bldg., Houston, Tex. 55 mi of 16-in. crude oil tank line Raceland to Plaquemine for Interstate Oil Pipe Co., Standard Oil Bldg., Shreveport, La., $1,320,000.

Centex Const. Co. and **Murchison Bros.,** 302 Land Title Bldg., San Diego, Calif., construct, manage and finance 16 duplex units and 77 multiple family dwellings, Military Housing Project No. 47, San Diego, Calif. for Eleventh Naval Dist., San Diego, $7,602,486.

Villa Contracting Co., 233 North Ave., Westfield, N. J., grading, drainage and paving for Sect. 7, Garden State Parkway from Route 66 to Pine Brook Rd., New Shrewsbury, Monmouth Co. for New Jersey Highway Authority, 1035 Parkway Ave., Trenton, N. J., $1,725,575.

Utah Construction Co. and **C. H. Leavell & Co.,** Box 1451, El Paso, Tex., major and minor Caliber Buildings, Shumaker, Ark. for Navy Dept., Bldg. 16, Dept. of Public Works Office, New Orleans, La., $2,274,464.

P. & J. Artukovich, Inc., 13305 S. San Pedro St., Los Angeles, Calif. water pipeline between Southern Ave., and Victoria St., for Middle-Feeder of Colorado River distribution system, Los Angeles, for Metropolitan Water District of Southern Calif., 306 W. 3rd St., Los Angeles, $3,238,245.

(More Big Jobs on page 214)

ROCK RATED



with Built-In features to save you money

MODEL 1055 — 3½ yards
MODEL 955A — 2½ yard

Strength was no afterthought on this husky machine. It started on the drawing boards — with all-welded construction of tough rolled steels — with extra strength where strength is needed — with the ability to absorb continuous shock loads . . . and the stability to let you use full power for bigger production. It is the steady digging, without time-outs for pampering, that saves you money.

Add smooth hydraulic control to cushion operations and reduce operating fatigue, and you have the built-in advantages to make all kinds of rock work more profitable. The Model 1055 (3½ yard) and the Model 955-A (2½ yard) have proved it. Ask to see one on the job.

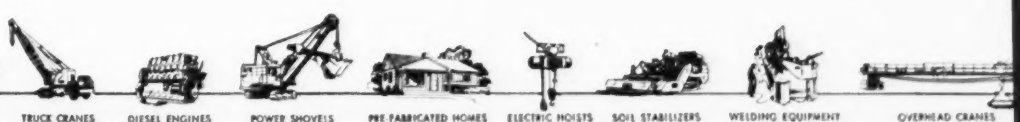
P&H MAGNETORQUE*
ELECTRIC SWING

gives you the slickest, fastest cycle you've ever known on machines of this size . . . from 15% to 25% faster than any others! And there are no delays for adjustments or replacement of swing frictions. Magnetorque eliminates all that — and lasts the life of your machine.

*T.M. of Harnischfeger Corporation for electro-magnetic type coupling.

P&H LARGE EXCAVATOR DIVISION
HARNISCHFEGER CORPORATION
MILWAUKEE 46, WISCONSIN

the P&H *Line*



TRUCK CRANES · DIESEL ENGINES · POWER SHOVELS · PRE-FABRICATED HOMES · ELECTRIC HOISTS · SOIL STABILIZERS · WELDING EQUIPMENT · OVERHEAD CRANES

GULF PRODUCTS *and* FINE SERVICE

keep equipment rolling

on Florida Air Base Project



Hooper Construction Company, Coral Gables, Fla., has the subcontract for excavation in connection with the U. S. Engineers Project at Pine Castle Air Force Base, Orlando, Fla. The job involves moving about 1,000,000 cubic yards of earth. The prime contractor on the project is the W. L. Cobb Construction Company of Decatur, Ga., and Tampa, Fla.

THIS is another large and important project where the contractors rely on Gulf to help keep equipment delivering top performance.

Contractors like Hooper Construction Company, for example, know from experience that Gulf quality lubricants provide an extra margin of protection against mechanical delays. And that Gulf quality fuels insure full engine power and efficiency.

Then too, they appreciate Gulf's prompt delivery service—and the engineering counsel that Gulf provides to make sure that the most suitable petroleum products are used for every unit.

Let us discuss with you how Gulf products and service can help you on your next job. They are quickly available to you through more than 1400 warehouses in 31 states from Maine to New Mexico.

GULF



WIRE ROPE, too, resists attack with the RIGHT KIND of muscle

Brawny chest and shoulder muscles make the gorilla a formidable foe in the eternal warfare of the jungle. Defending himself and his family, this 450-pound heavyweight stands erect and fights back with sledge-hammer blows of his mighty forearms.

In wire rope, too, it takes the right kind of muscle to resist constant attack of abrasion, corrosion, bending fatigue, load strain and shock stress.

Complete quality control of Wickwire Rope means that you can always count on the right grade of steel and size of wire; the right construction and lay of the rope for best results on your particular job.

See your Wickwire Rope distributor or contact our nearest sales office.

WICKWIRE ROPE
A CF&I PRODUCT

1221

A YELLOW TRIANGLE ON THE REEL IDENTIFIES WICKWIRE ROPE

THE COLORADO FUEL AND IRON CORPORATION — Abilene (Tex.) • Denver • Houston • Odessa (Tex.) • Phoenix • Salt Lake City • Tulsa

THE CALIFORNIA WIRE CLOTH CORPORATION — Los Angeles • Oakland • Portland • San Francisco • Seattle • Spokane

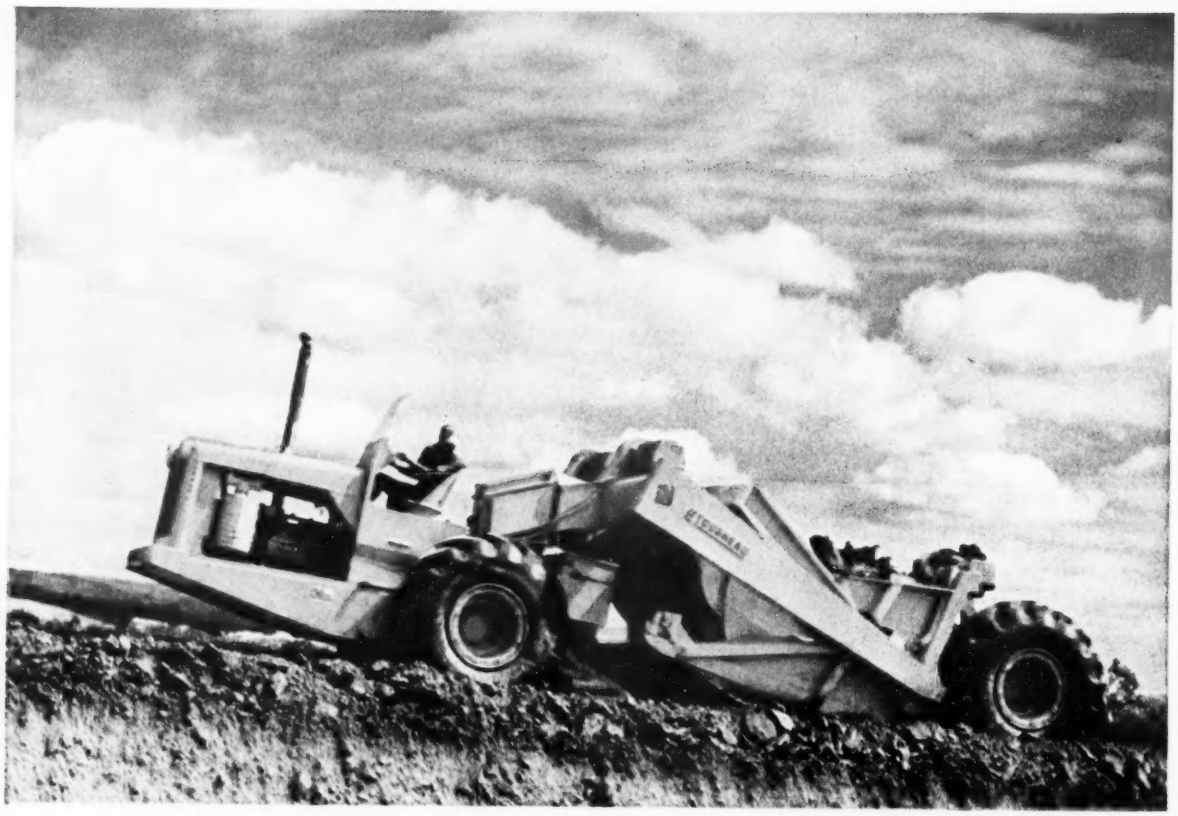
WICKWIRE SPENCER STEEL DIVISION — Boston • Buffalo • Chattanooga • Chicago • Detroit • Emlenton (Pa.) • New York • Philadelphia

WICKWIRE ROPE

CF&I

PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

SWITCH TO GM DIESEL



A NEW LOOK AT ENGINE PERFORMANCE

If you think all engines "perform" about the same, check this fact: A General Motors 6-cylinder Diesel operating at 1800 rpm produces *180 power strokes per second.* A 4-cycle six produces only *90.*

We won't say this feature makes a GM Diesel accelerate twice as fast as a 4-cycle engine, but it does mean a GM Diesel gets a load moving quicker and keeps it moving when tough going would slow down a 4-cycle engine.

It means faster work cycles with GM Diesel powered equipment—increased output per unit and per man hour. That's one reason contractors specify GM Diesel power more than any other.

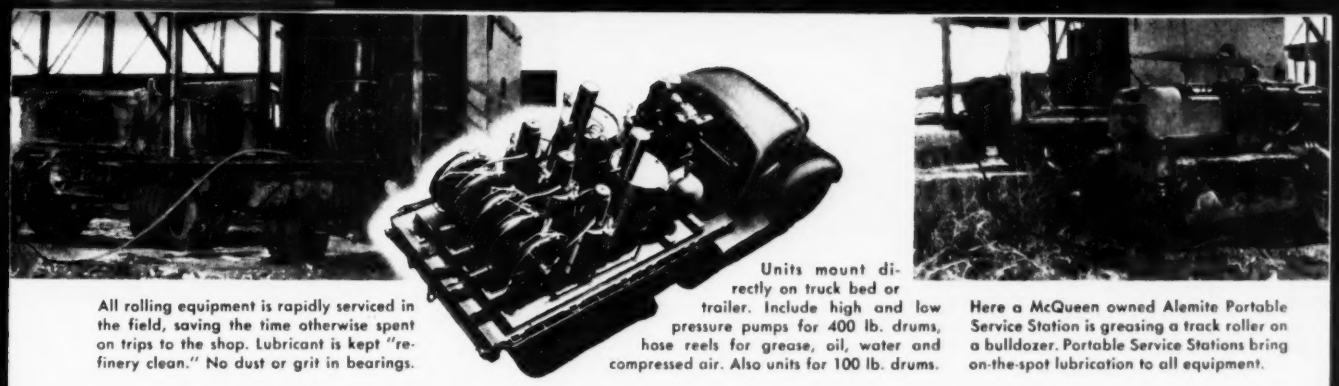
How about equipment availability? The simple design of the GM Diesel fuel system eliminates one of the main causes of down time—high pressure pumps and fuel lines. And maintenance costs? Compare the price of replacement parts and you'll see why GM Diesels cost far less to maintain.

To get the most from your equipment dollars, specify machines with General Motors 2-cycle Diesel power. Available in more than 750 models of equipment built by over 150 different manufacturers.

Single Engines . . . 16 to 275 H.P. *Multiple Units . . . Up to 840 H.P.*

GM GENERAL MOTORS DIESEL POWER

DETROIT DIESEL
ENGINE DIVISION
GENERAL MOTORS · DETROIT 28, MICHIGAN



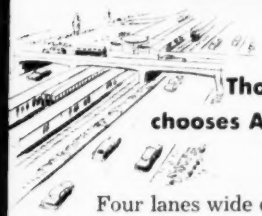
All rolling equipment is rapidly serviced in the field, saving the time otherwise spent on trips to the shop. Lubricant is kept "refinery clean." No dust or grit in bearings.

Units mount directly on truck bed or trailer. Include high and low pressure pumps for 400 lb. drums, hose reels for grease, oil, water and compressed air. Also units for 100 lb. drums.

Here a McQueen owned Alemite Portable Service Station is greasing a track roller on a bulldozer. Portable Service Stations bring on-the-spot lubrication to all equipment.

how Alemite *"Friction Fighters"* guard the machines...

DIGGING A BED FOR A $92,000,000 SUPER HIGHWAY



Thomas McQueen Company chooses Alemite portable service station for Chicago project

Four lanes wide each way, with room in the middle for an open subway. Running all the way from downtown Chicago to the city limits—without a stop light or a cross street—because it is "down in the ditch," below the level of regular streets. That's the Congress Street Super Highway now under construction in Chicago.

Faced with the tremendous task of earth moving and construction involved, plus a tight time schedule, the Thomas McQueen Company, a prime contractor on the job, turned to Alemite Portable Service Stations to protect vital equipment—and to save these *three* ways—

1. **SAVE TIME!** By bringing complete power lubrication to all equipment right on the job—safely, efficiently.
2. **SAVE MONEY!** By cutting expensive lubrication "downtime"—increasing output of both men and machines—and slashing operating and lubrication costs.
3. **SAVE EQUIPMENT!** By greatly reducing the possibility of costly bearing failure—keeping rigs running smoother longer.

Get these four services with Alemite portable service stations

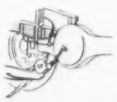


Fast, easy lubrication of track rolls and fittings.



No oil wasted—use exact amounts of lube desired.

Quick filling of gear housings, transmissions, final drives.



Air line equipment for tire inflating, air jet cleaning.





ALEMITE
A PRODUCT OF SW STEWART-WARNER
REG. U. S. PAT. OFF.

ALEMITE, Dept. F-63
1850 Diversey Parkway, Chicago 14, Illinois

Gentlemen:
Please send me FREE your illustrated booklet containing complete information on Alemite Portable Service Stations and Alemite Equipment.

Name

Company

Address

City State

(Advertisement)

NEWS from the Field . . . as reported by . . .



ARKANSAS — "2000 hours on my *600* with no trouble of any kind. Holding 100 pounds pressure while operating two 4" wagon drills." Stays on till the job is done — that's the way the Gardner-Denver *600* is built.



PENNSYLVANIA — "Have two WH600 Portables operating side by side . . . keeping the job right on schedule . . . have required only routine maintenance."



W. VIRGINIA — "In continuous service . . . and running like a watch." Starts easily — keeps on going. No tricky adjustments to require constant attention.

(Advertisement)

Contractors now using the GARDNER-DENVER 600



PENNSYLVANIA — "Side by side test convinced us the *600* saves fuel . . . as much as one gallon in four on our job." The *600* is economical with oil, too.



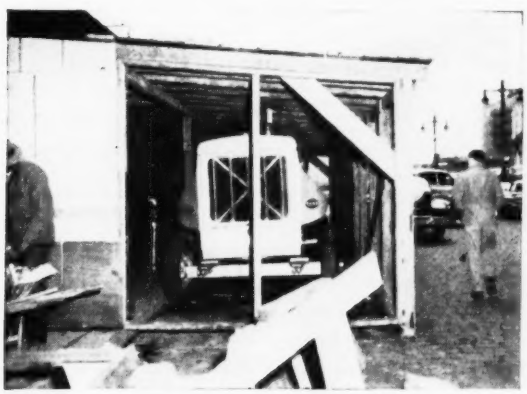
WASHINGTON — "Our regular operator required no special training to run the *600*. Well pleased with the performance of this heavy-duty unit."



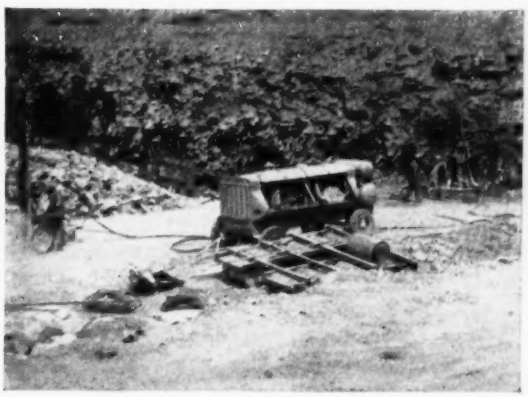
CALIFORNIA — "Around the clock operation . . . have five machines in continuous service . . . very satisfactory." Ask the men who use the *600*.



CANADA — "Increased drilling footage . . . running my *600* ten hours a day with no trouble." The *600* speeds your work — increases profits.



NEW YORK — "Smooth and quiet . . . even at full capacity." Balance a 50-cent piece on an operating *600* — see for yourself how free it is from vibration.



KANSAS — "Have one of the first machines built . . . highly pleased. Operating two 4" wagon drills." The *600* will see you through many a tough job.

For complete information, write to Gardner-Denver Company, Quincy, Illinois. In Canada: Gardner-Denver Company (Canada), Ltd., 14 Curity Avenue, Toronto 13, Ontario. Since 1859. The quality leader in compressors, pumps and rock drills for construction, mining, petroleum and general industry.

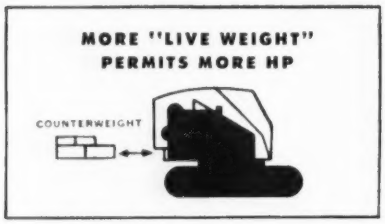
Before you buy:

COMPARE NET HP!



This LS-85, despite tough, big-chunk rock, has been operating over 1200 hours without requiring one replacement part!

Don't judge available power by engine model only ... NET hp is what adds up to extra profit!



COMPARE shovel-cranes with and without counterweight. That test spotlights the size, weight and heft built into the working parts and structural members. You'll find the LS-85 has more "live weight" than comparable ¾-yard shovel-cranes.

Greater net horsepower assures faster, deeper digging. Bigger loads are handled without stalling. For example: the diesel driven heavy-duty ¾-yard LS-85 packs 92 net hp. That's more power than comparably-sized competitive rigs can safely use. It's why the LS-85 has more digging force behind its bucket teeth . . . why it cuts so smoothly . . . hoists and swings without a pause.

Use of greater net hp is practical because of all-welded, stress-relieved construction *and extra "live weight."* This *extra live weight* is in heavier, sturdier working parts and structural members—rather than a heavier counterweight. All this means year-after-year service and low maintenance costs. So whatever you do, don't compare power by the engine model only—CHECK *NET* HP.

For more facts on the LS-85, ask your distributor, or write for Catalog 2317. For the complete line, request Catalog 2373.

LINK-BELT SPEEDER CORPORATION
Cedar Rapids, Iowa

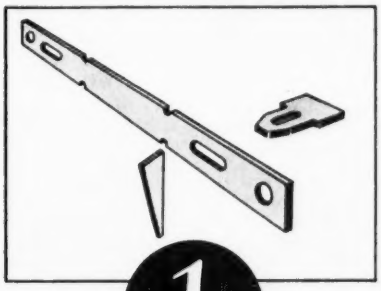
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LINK-BELT SPEEDER CORPORATION

BUILDERS OF A COMPLETE LINE OF CRAWLER, TRUCK AND WHEEL-MOUNTED SHOVEL-CRANES

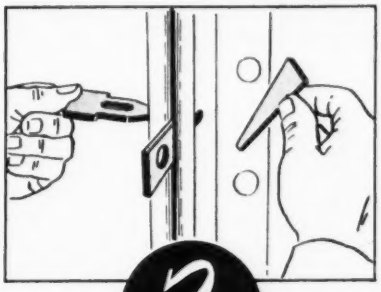
FACTORY-TRAINED DISTRIBUTOR SALES AND SERVICE SPECIALISTS ...*EVERYWHERE*

Three pieces comprise the unit.



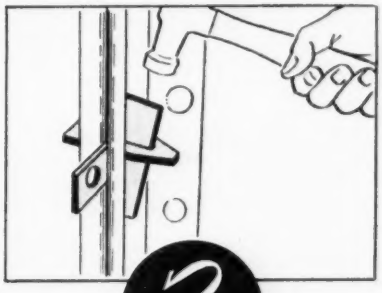
1

Slip panel into position with **FLAT BAR TIE** between panels. Put **KEY WEDGE** thru frames and slot in **BAR TIE.**



2

Stick **WEDGE** in slot in key wedge. Drive fast with hammer.



3

. . . and your form is set!

A SIMPLE UNIT OF 3 PIECES

QUICK AND EASY ASSEMBLY

A LIGHTWEIGHT FORM PANEL

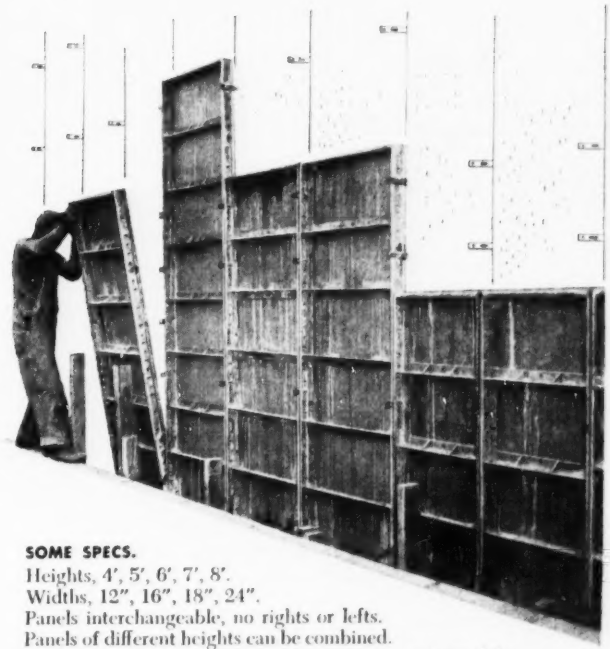
ATLAS COMPO FORMS go up faster, strip easier. Contractors and builders save on form costs and form labor with every use. Panels slip into place without disturbing adjoining panels. No sidewise juggling needed to erect or strip. Start at any or many points.

A pleasure to handle, the largest panel weighs but 75 lbs. But it's TOUGH! Pressed steel channels of our own weight-saving design, frame and reinforce plastic-faced plywood. The plastic plywood faces have been re-used 40 times before reversing. And split rivets make reversing or replacement easy.

No walers needed, no wooden wedges, no nail-driving. One row of a pair of 2 x 4's takes care of maintaining alignment under pressure. Liners go up in a jiffy, thanks to our exclusive liner clamp which hooks on to bar tie.

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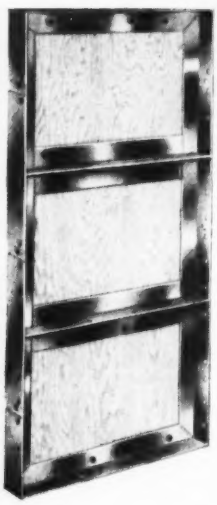
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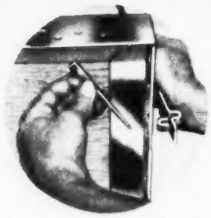
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Wedge-Shaped for fast, easy insertion.

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1 Place the Uni-Form Tie Loop into the Tie Hole.



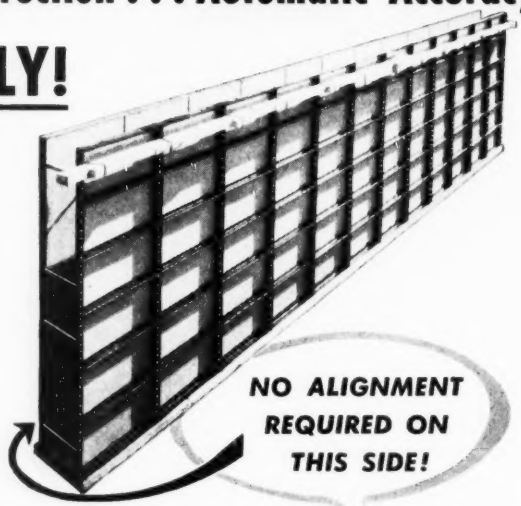
2 Set the Tie Key into the Tie Loop. Panel and Tie are then locked into one integral unit.



3 Bring the next UNI-FORM Panel into position . . . insert the Tie Key. The assembly is now completed.

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Concrete Spreader on a Boom

SPREADING AND ROUGH FINISHING 8 in. of concrete is done neatly with this 16-ft wood beam bolted to the blade of a Warner & Swasey Gradall. Schloss Paving Co., Cleveland, first used its Gradall to rip out temporary asphalt topping on this 4,900-ft center strip and to grade for a concrete base. E. C. Behrend (in plaid jacket), Schloss job superintendent, devised the wooden beam with notched overhangs at the ends to establish the 2½-in. depth clearance for an asphalt course to follow. Transit-mix is poured, and the "arm-action" telescoping boom of the Gradall does the rest.

Construction News in Pictures



WATER BLAST—Heavy stream of water knocks loose rock and dirt off the left abutment of Palisades Dam, a Bureau of Reclamation project in southeast Idaho, to provide flood control, power and irrigation. About 3,000,000 yd of material will be placed this year in the 13,800,000-yd fill. The big Allis-Chalmers crawler with angle dozer clears away accumulated muck.



SPECIAL DEVICE—Old Red, the mule, and the single-furrow plow level Wellton Canal lateral berms for Morrison-Knudsen Co., one of the major contractors on the Bureau of Reclamation's Gila area in southeastern Arizona. The top of the bank is too narrow for earthmoving machinery following a trencher that excavates and trims canal sections in one operation.



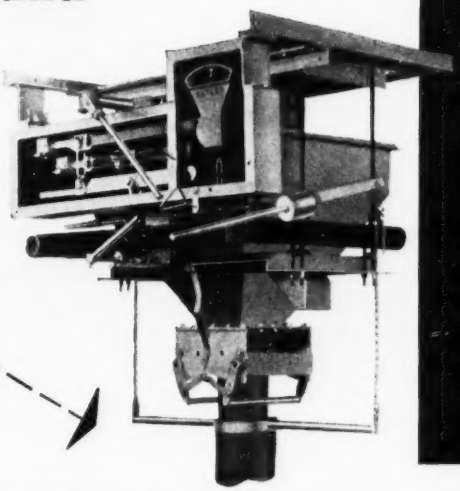
MIXING THE FILL—Uneven settling of a 12-ft fill is forestalled in part by a thorough mixing of layers of material placed by R. H. Wright and Sons, Uleta, Fla., on two 100-ft approaches to a cloverleaf where Route 9 crosses U. S. 441. Woods Pulvi-Mixer works a 6-ft width and takes ½ hr to cover each approach one time. It also is used to mix subgrade and base for the modernization of 7 mi of Route 9 near Miami. It is powered by an International UD-24 diesel engine, towed by a TD-24 crawler.

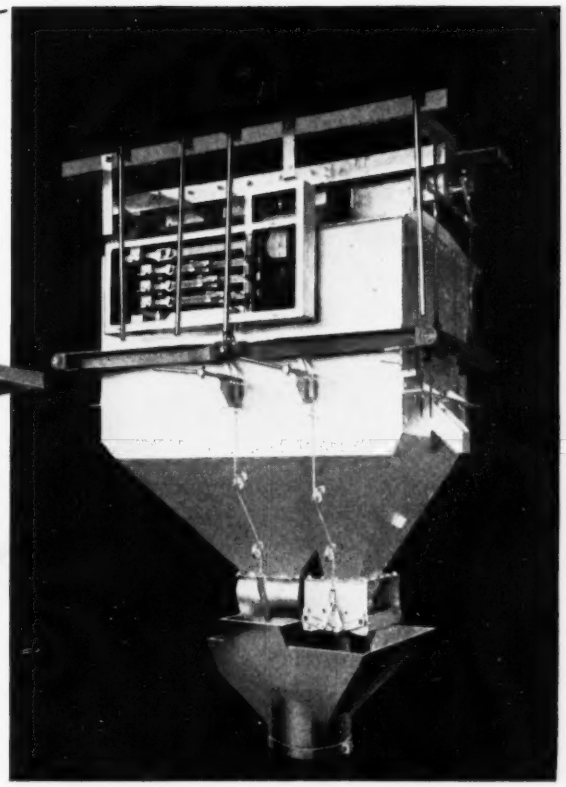
head,

heart and

hand

is the





BUTLER Weighing Batcher

Head? Yes, because whether it's for a Roadbuilders' Plant or an immense Central Mixing operation, a BUTLER Batcher is a fast-acting robot that virtually thinks for itself. The fully automatic, pushbutton units do *all* the thinking, faster and more accurately than a man.

Heart? Yes, because it's the BUTLER Batcher that keeps materials in smooth-flowing circulation with a pulse-like, never-failing regularity — batch after batch, month-in and month-out.

Hand? Yes, because a BUTLER Batcher "hands-out" batches to your trucks with split-pound accuracy and at a speed that keeps them humping to keep up.

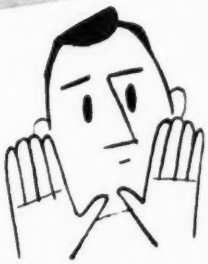
So, whether you need a completely automatic, vastly complex, mistake-proof, push-button Batcher to weigh out as many as 8 materials . . . or a combination Batcher for cement and aggregate . . . or a Batcher for 3 aggregates . . . or fast-stepping, high production Batchers for your Roadbuilders' set-up — it's profitable and wise to insist on the BUTLER nameplate.

BUTLER Weighing Batchers are readily installed on any plant — regardless of make. So if your batching equipment is getting on the old and jaded side, give your plant a new and active head, heart and hand — a BUTLER Weighing Batcher — and watch your production soar.

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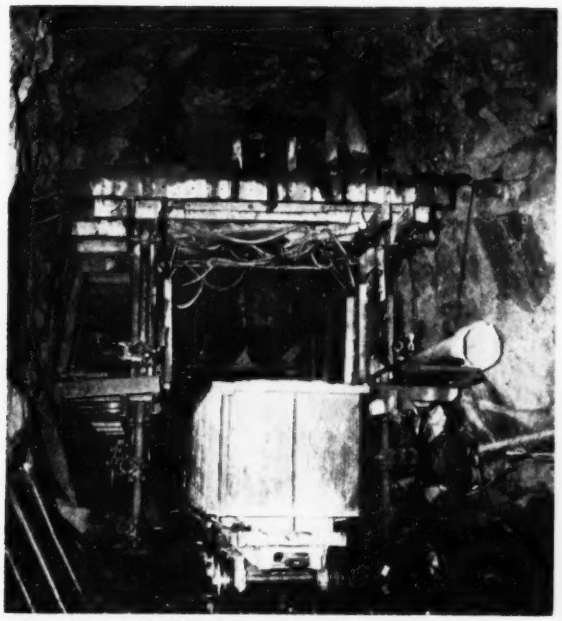
CHAIN BELT REX COMPANY®



CONSTRUCTION MACHINERY

MOTO-MIXERS MIXERS PUMPS PUMPCRETES PAVERS

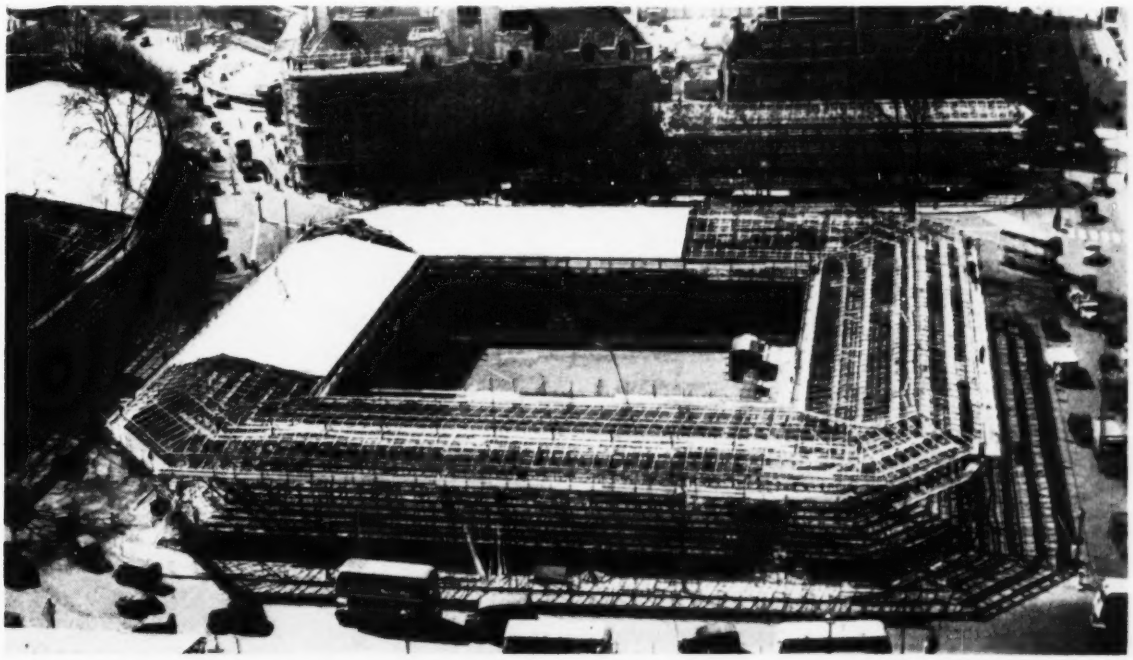
CONSTRUCTION 'ROUND THE WORLD



JUMBO CHERRY PICKER—Down in southeastern Australia, construction engineers are tapping water for hydro-electric power by driving tunnels through miles of granite. Here is a tunnel 25 ft high being drilled from a jumbo on rails. It also picks mine cars off the track to pass loaded cars and empties on the single line. The $75,000,000 Kiewa power job also involves construction of five dams, seven reservoirs and six power stations.—Eastern Publishers photo



TREAD WITH CARE—Steep slopes to the left and the constant hazard of avalanches from the right menace tractors and operators at the site of the largest dam in Switzerland. Here an International TD-24 and TD-18 push Bucyrus-Erie bullgraders to remove earth to bare rock in the Val de Bagnes near the Italian border. When completed, the dam, located in the Mont Blanc region in the southeastern part of the country, will supply electric power to Switzerland and surrounding countries.



TO VIEW THE QUEEN—The coronation of Queen Elizabeth II is now a matter of history but the elaborate preparations long will be remembered. This is a bird's eye view of the huge quadrilateral coronation stands just before completion on London's Parliament Square. Picture was taken just outside Westminster Abbey where crowning took place. Large rectangular seating gallery covers all available space in the square. Viewing stands were erected on every vacant spot possible.—Wide World photo

P&H Diesel Engines

(2-CYCLE)

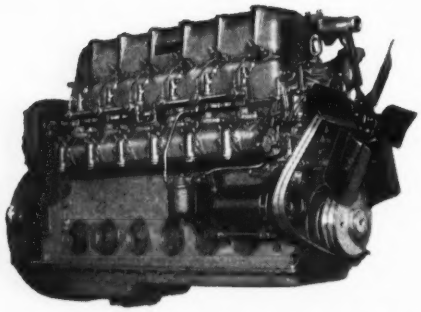


Can your diesels match this torque curve?

This is the torque curve for the P&H Model 687-C Diesel Engine. Note how the torque characteristics are sustained throughout its entire horsepower range.

That means steady, responsive power at all speeds — greater lugging "ability" for those toughest jobs. It's the kind of unfaltering performance that assures more profits in any service, constant or intermittent.

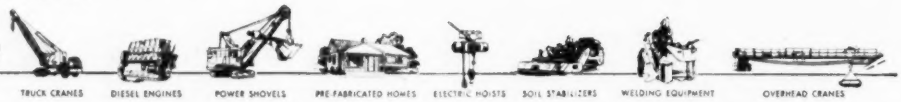
Steady torque for steady work is just another outstanding feature of P&H Diesel Engines — America's most advanced line. Ask your P&H Diesel representative for the full story. Or write for literature.



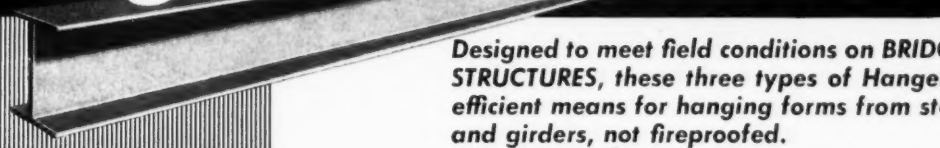
P&H Diesel Engines are built in 1, 2, 3, 4 and 6-cylinder models — up to 145 h.p.

P&H DIESEL DIVISION
HARNISCHFEGER CORPORATION
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the P&H *Line*



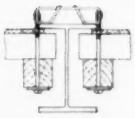
SUPERIOR ACCESSORIES ON THE BEAM



Designed to meet field conditions on BRIDGE SUPERSTRUCTURES, these three types of Hangers provide efficient means for hanging forms from steel beams and girders, not fireproofed.

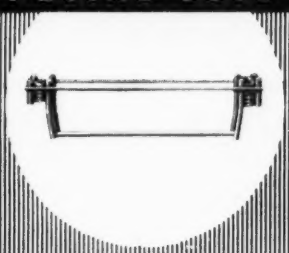
STANDARD COIL HANGER FRAME

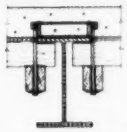




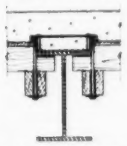
When hanging forms where specifications do not permit any hanger wire to be exposed after stripping, use Superior *Standard* Hanger Frames. Detail at left shows their use with double ledgers, ½" coil bolts, and flat washers. Total safe load on both bolts is 4,500 lbs., or 2,250 lbs. per bolt.

SPECIAL COIL HANGER FRAME





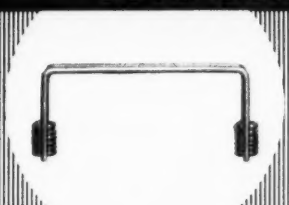
AT LOW HAUNCH

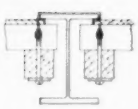


AT HIGH HAUNCH

The design of certain bridge superstructures allows for the permanent deflection of the beams or girders due to the pre-calculated dead load. This deflection is compensated by a concrete haunch on the upper flange, which varies in depth. Superior *Special* Coil Hanger Frames were developed to efficiently meet this field condition, at the same time avoiding any exposed hanger wire. The extent to which the ½" Coil Bolts are threaded into the coils allows for these varying haunch depths from maximum to zero. (See detail at left.) Total safe load per frame is 10,000 lbs., or 5,000 lbs. per ½" bolt.

COIL BEAM SADDLE





Superior Coil Beam Saddles are used, as shown at left, where hanger wires may be cut after stripping the forms. The Coil Bolts allow for any variation in lumber and flange thickness and tightening the bolts pulls the forms tightly against the flanges. Forms are easily stripped. Safe load is 6,000 lbs. per saddle, or 3,000 lbs. for each ½" Coil Bolt. Coil Beam Saddles are also furnished for ¾" and 1" bolts.

NOTE: WORKING PARTS (Bolts and Washers) are returnable. Layouts and estimates for Superior Hangers are available without cost or obligation.

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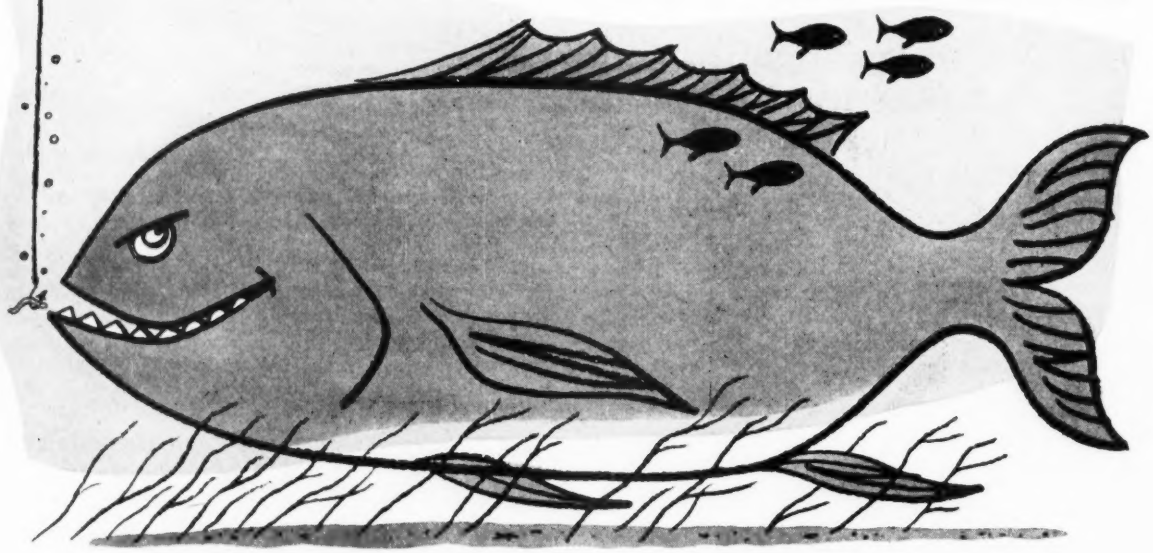
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Volume 35
Number 6

CONSTRUCTION
METHODS AND EQUIPMENT

JUNE
1953

Harold W. Richardson, Editor

Somebody Should Be Mighty Proud!

"SO SORRY, MRS. MARKS, that your kid got burned up, but you see, we had to protect our job rights." That was the tortured conscience of an un-named AFL building trades leader in the New York area seeking solace. Sure, Cpl. Carl Marks and Pfc. Earl Munford were burned to death, but building labor triumphed! Labor leadership must be mighty proud of that victory!

Here's the sad, sad story. Last fall the Army snafued finances, (nothing unusual) didn't provide for contract construction of prefab housing for various aircraft detection and A-A installations in northern areas. Therefore, the Army proposed to erect the prefab winter quarters with troop labor. Thereupon pandemonium, consternation and asininity broke loose with a terrifying roar in AFL building trades circles, especially in the New York area. "If one innocuous prefab panel is picked up by a soldier instead of by a union carpenter, we'll strike every defense construction project from coast to coast. If we can't have those piddling few prefabs, by damn, we'll pull every important job in the country," says mighty labor.

Strike what? They threatened to walk off all the defense construction projects being built for the protection of all Americans, including labor. But labor somehow has got the idea those projects are under way merely to give their workers some additional work. They seem to think they have an invested right in America's defense!

In the face of such dire threats the Army capitulated. But there still were no funds available for contract erection of prefabs. And did union labor get the job? No! Army had to resort to tent housing of A-A units, which could be erected by troop labor. Building labor doesn't claim tents; otherwise, they might have to go to Korea. So the Army built the miserable tent housing for the city defense units. You've seen them around New York, and also Chicago and other cities. For the most boring of all Army duties, we can't give the boys even decent quarters.

Well, a flimsy tent unit burned up one night in New York, and in the holocaust Marks and Munford met a needless death. Somebody should be mighty proud!

"SO SORRY, MRS. MAGGIO, that Tony got killed today. Too bad he leaves you with those three little bambinos. But, you see, we wanted to get that truck back on the line right now." That was the anguished voice of a construction boss trying to justify his own neglect. Tony Maggio was crushed when an open dump-truck body he was working on suddenly collapsed.

That truck was busy, it was needed out on the job. Why take an extra moment to put a prop under the open body while a mechanic was seeking the cause of hoist trouble? No, get it fixed and back into service in a hurry. So Tony died because of careless haste. Someone should be proud of that kind of efficiency!

Sure, Tony's boss was clearly at fault in not seeing to it that a prop was placed under the open truck body. But the truck-body manufacturer was also to blame. Why didn't he provide a simple built-in prop, as at least one manufacturer does? Contractors could easily force every body manufacturer to build a prop in place by refusing to buy any dump-body not so equipped. And that goes for a lot of other equipment safety features, too, such as boom stops on every crane.

Tony's death is typical of all too many tragic accidents in construction—taking of unnecessary chances to speed the job along. Sure, safety precautions take a little time, a little trouble, a little forethought, and a lot of determination from on high, but they certainly pay off. But safety and careless haste are incompatible.

There is nothing complex nor mysterious about construction safety, but many contractors seem to think so. No, safety is simply the application of ordinary common sense, the anticipation of possible errors. Certainly there is nothing mysterious about anticipating trouble if dump bodies aren't blocked open when being repaired, if outriggers aren't used for heavy crane lifts, if wire rope isn't inspected regularly. Every construction operation is a hazard until someone gives it some common-sense attention to avoid accidents.

Tony's death was the result of a senseless accident, just as are hundreds of other accidental deaths every year in construction. Tony shouldn't have been killed, no more than should the two young soldiers who perished in the tent fire.

It's high time we paid more attention to human relations in construction. When that time comes, we'll all be mighty proud.

Rich

Here's One Way To Build A Rock-Fill Dam

By HENRY T. PEREZ, Senior Associate Editor



BEAR CREEK DAM of Nantahala Power & Light Co. advances across valley of Tuckasegee River's East Fork, 18½ mi southwest of Sylva.

IN SPITE OF what the old adage says, it takes more than faith to move mountains—especially when they're tough granite. Knowing that, Harrison Construction Co. brought in a big fleet of husky and efficient equipment to its mountain-moving job in western North Carolina. There the Pittsburgh (Pa.) outfit is cutting a sizable chunk from one mountain and piling it in a river alongside to make a rock-fill dam. Some 223 ft high, this is almost a young mountain in itself.

The dam is part of Nantahala Power & Light Co.'s development of the East Fork of the Tuckasegee River (CM&E, May, p 58). Known as Bear Creek Dam, it will have a crest length of 765 ft and a maximum thickness of 760 ft at the base and 25 ft at the top. Its 13,000-hp turbine operating under a 230-ft head will drive a 10,000 kva generator.

Aluminum Co. of America designed and is building the project for its public utility subsidiary. *Fig. 1* shows the dam section near midpoint. The main fill of quarry-run rock is blanketed on its upstream face with layers of successively finer graded crushed stone. This will act as a filter to prevent migration of the impervious core which comes next. Of rolled earth and up to 60 ft thick, the core in turn is covered with more graded filter material, this progressively coarser. An upstream blanket of quarry-run rock completes the section.

General dam-building procedure is as follows: Turn the river through a combined diversion and power tunnel by means of an upstream cofferdam about 50

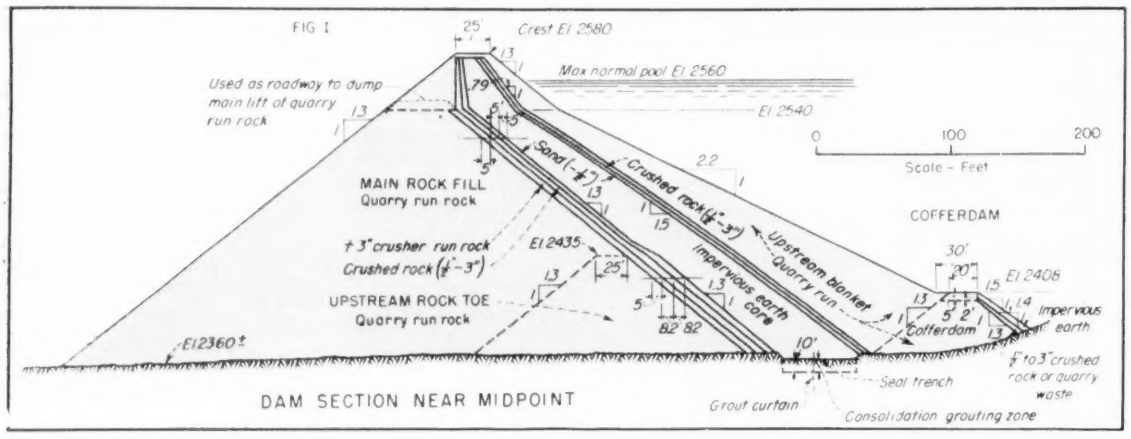


Fig. 1 . . . DAM SECTION shows how cofferdam is incorporated into main structure. Rock for cofferdam came from excavations for tunnel intake, gate track and lower cascade. All other rock (for fill, filters, blankets) comes from spillway and cascades section of dam.

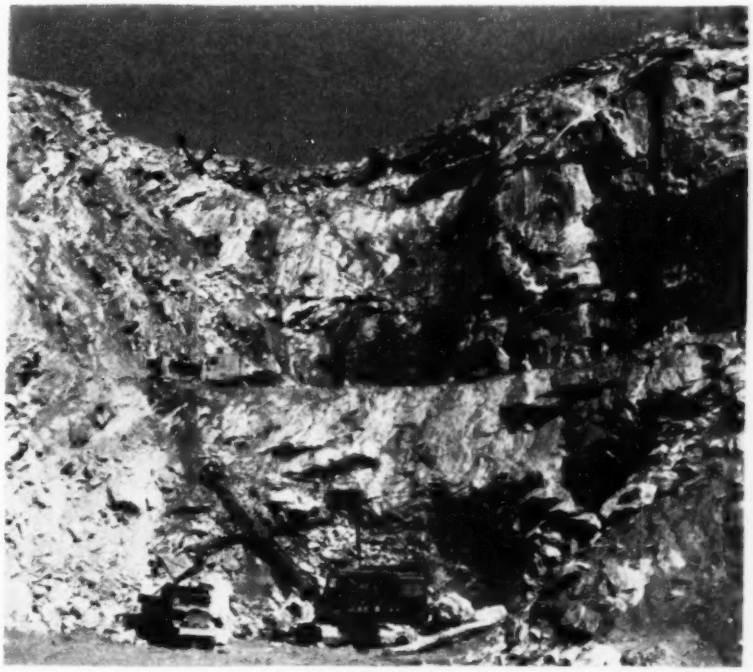


N. C. Monitor flushes off left abutment, while another one works on abutment, is dumped by truck from top of fill, here 183 ft high. main rock fill. Rock for fill comes from spillway excavation behind far Tunnel intake gate track is at far right.

ft high, whose top is at El 2408: build up the main dam's upstream rock toe 27 ft higher than this; excavate to solid rock and grout the area between cofferdam and toe, which space is the base of the impervious earth core; build up core, filters and blanket to the top of the toe.

Meanwhile, after the rock toe has been topped out at El 2435 and the river bed stripped, begin the main rock fill by dumping from the right (north) abutment at El 2530. Continue dumping from the right, working out until the entire main fill is completed to this elevation at each abutment and to El 2540 in the center. (This extra 10 ft is to allow for possible settlement). Build up filters, earth core and blanket to these heights, then complete the top 40 ft of dam.

With the exception of part of the 150,000 cu yd of core clay which is dug from upstream pits, all of the dam building material comes from immediately behind the right abutment. The spillway there was designed to furnish all the 850,000 yd of rock required for fill, filters



BIG DAM-BUILDING EQUIPMENT is dwarfed by rock cliffs as it labors in cascades section, where drops are 60 ft. The two shovels are 4-yd Marions, drill is a Joy Champion.

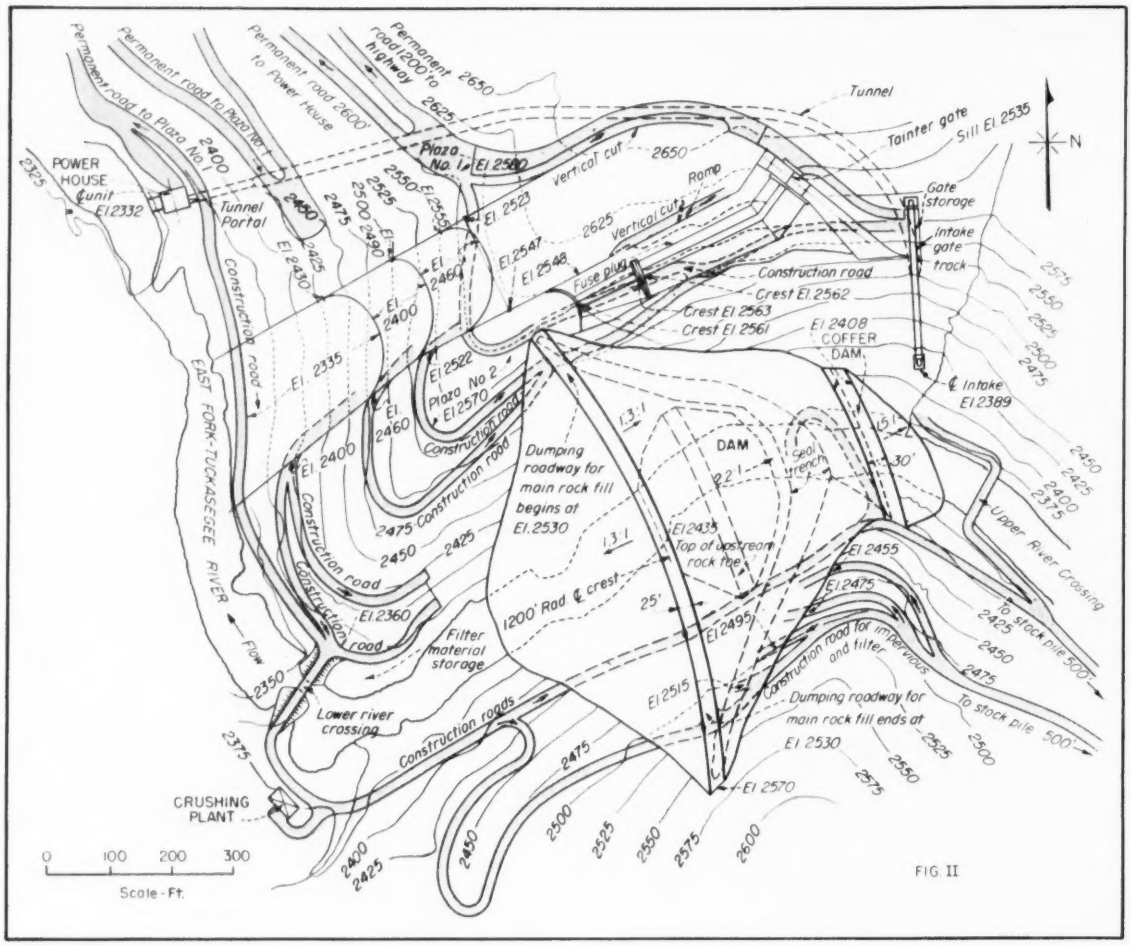


Fig. 2 . . . ACCESS AND CONSTRUCTION ROADS wind around damsite, took three months to build. Most had to be carved out of solid rock. This plan also locates dam's features: Gate track and intake at far right, tunnel to powerhouse at left, spillway section at top.

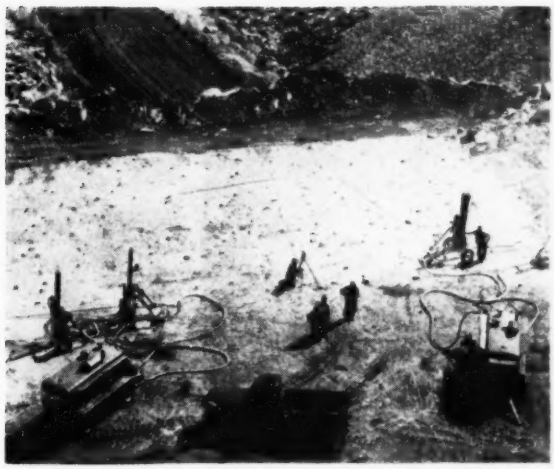


ROTARY DRILL works at top of cascades, putting down 6-in. holes as deep as 100 ft, and getting better than 11 ft per hr in tough gray granite. Holes are on 18- to 22-ft centers. Note series of winding haul roads to left of the Joy Heavyweight Champion drill.

and blankets. Quarrying this amount of stone will result in a waste water channel some 170 ft wide and more than 900 ft long. With vertical side walls (whose maximum height exceeds 125 ft) and with three vertical cascades (60-, 60- and 65-ft drops) this is a spectacular cut.

The spillway structure itself is a dual unit: A concrete section with one 25x25-ft tainter gate; and an earth section nearly 400 ft long. The latter, called a fuse plug, is really a low (6- to 12-ft) rolled-fill dam designed to wash out progressively when abnormally high flows exceed the capacity of the gated structure.

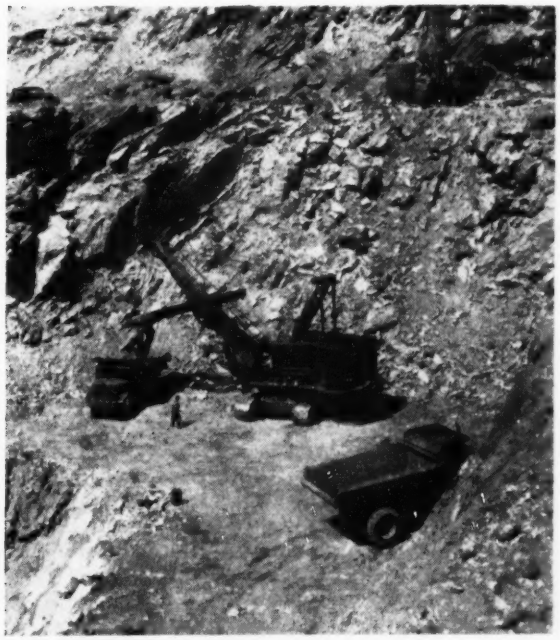
But before Harrison could begin serious work on any of these dam features, a series of both temporary and permanent access roads had to be built. This road network (*Fig 11*) is really the key to efficient job progress. Because the rock is quarried from many different levels,



WAGON DRILLS put down blast holes on 5-ft centers in spillway section where "fuse plug" will be located. Two Gyro-Flow 600s furnish air to the Ingersoll-Rand and Gardner-Denver machines.



HIGH-PRESSURE JET sluices down slope as Euclid truck dumps load of rock from top of main fill. Points of large rocks must be in direct contact with others, and jet washes fines into voids.



BIG SHOVEL AND TRUCKS enlarge cascade step as rotary drill prepares for next shot. Diesel-powered Marion 4-yd rig loading into 10-yd Euclid trucks has electric swing and air controls.



SMALLER SHOVEL opens up ledge to make working space for larger machine. This 2½-yd Lorain has been diverted from its primary job of digging clay for dam's impervious core.

careful planning was necessary to insure that the roads would not be cut off as excavation proceeded. Because all of the rock is coming from one side of the dam, provision had to be made for trucking crushed filter material to a stockpile upstream on the opposite side before the main fill blocked the valley. And other roads had to be readied to get this filter material—and the earth for the core—into the dam at various levels as the structure was built up.

While they total only 2 mi in length, most of the 22-ft wide roads had to be benched out of the near-vertical mountainside—a job requiring three month's time and 80,000 yd of excavation. Maximum grade is 10%, but roads are surfaced with tunnel muck or crushed stone for all-weather use.

Over those roads came all the equipment for dam building. And this included such big machines as two Marion 4-yd shovels and a Joy Heavyweight Champion rotary blast-hole drill. With these and the other equipment listed in an accompanying table, Harrison is placing as much as 80,000 cu yd a month in the main rock fill. Filters, core and blanket are also climbing toward completion.

The big Joy machine with Hughes roller bit handles main drilling in the spillway and cascades sections. The 6-in. holes vary from 30 to 100 ft in depth and average 88. They are generally spaced 18 to 22 ft both ways. Putting down



HIGH-PRESSURE PUMP upstream supplies water through 2,500 ft of 8-in. Naylor pipe to monitor on abutment. Similar Fairbanks-Morse pump (2,000 gpm at 300-ft head) supplies monitor on fill.



POWERFUL MONITOR shooting long stream through 2-in. nozzle flushes dirt from abutment to get down to bare rock. Area under main rock fill was just grubbed and mechanically stripped.



DIAMOND CORE DRILL puts down 1¾-in. exploratory holes and grout holes 100 ft deep. When grouting latter, 24-ft length of pipe is sealed in top to get below shallower, previously grouted holes.



CRUSHED STONE for first layer of filter is dumped down slope from top of main rock fill while latter is still advancing across valley. Other filter material must be placed in lifts by truck.

better than 90 ft of hole per 8-hr shift, the drill averaged 12.2 ft per hr during the month of March. And this was in a tough quartzite rock —Carolina granitic gneiss.

Holes are loaded with Atlas 75% Giant Gelatin and Apex No. 4 in 5½x25 sticks. The gelatin goes in first, then the Apex No. 4, then 18 ft of stemming. Electric caps in bottom and top sticks, and Primacord the entire depth, insure complete detonation. Rockmaster delays (0 to 8) are used.

A typical shot would be 12 holes (6 in each of two rows) averaging 71 ft in depth, with a total loading of 6,600 lb of gelatin and 3,000 lb of Apex No. 4. This breaks out 13,300 yd of rock for an explosive factor of 0.72 lb per yd.

Some secondary blockholing has been necessary. However, because rock as large as 13½-ton chunks goes right into the dam (and this size is limited only by available equipment capacity) this operation has been at a minimum.

In the gated spillway and fuse plug area, final lifts are prepared by wagon drills to prevent overbreak and leave a smooth bottom. These holes, on 5-ft centers and 15 to 17 ft deep, are loaded for two-thirds of their depth with Atlas 40% gelatin and fired with 0 to 6 Rockmaster delays.

Two Marion 4-yd shovels load blasted rock into Euclid 10-yd rear dumps for the short but usually steep haul to the main rock fill. As mentioned, all of the main lift is being placed from the spillway side of the dam—the trucks riding out on the 47½-ft wide top of fill to dump their loads over the nose of the slope. While this fill is all quarry run, the larger rocks are dumped toward the downstream side and the smaller toward the upstream. This assures complete drainage of the rock fill downstream from the clay blanket.

Regardless of size, the dumped rock comes to rest on a 1.3 on 1 slope. And the fill is thoroughly consolidated by the impact of the stone as it crashes down the slope from the dumping point, which is as much as 183 ft above the base. In addition, the slope is sluiced down continually by a monitor on the top of fill. This washes fines



D8 DOZER PULLING SHEEPSFOOT ROLLER spreads and compacts clay delivered by Euclid truck for impervious core of dam. This early photo, looking downstream, was taken before filters and core had reached top of dam's upstream rock toe (rear). Finer filter material has been dumped between core and toe. At far left, jackhammer crews are taking the abutment down to solid rock.

and spalls into the void between large rocks, and also leaves the latter in direct contact with each other. It results in a remarkably solid fill.

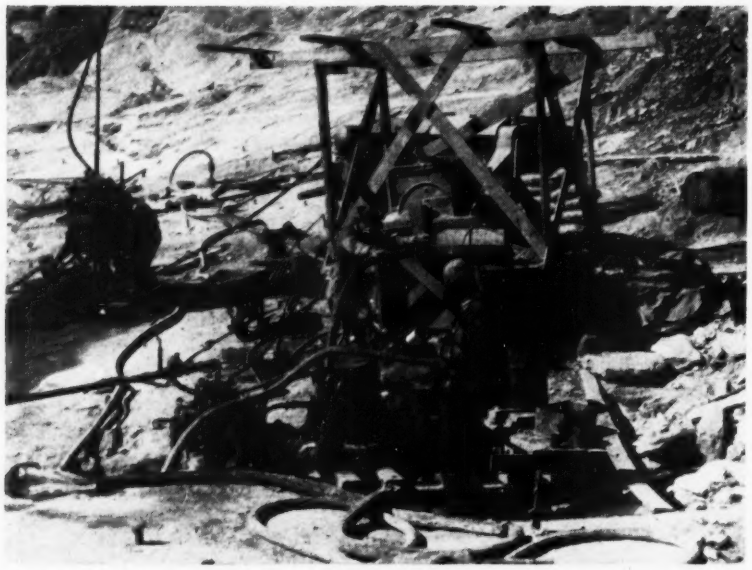
River water for sluicing is supplied to the 2-in. monitor by an 8-in. Fairbanks-Morse 300-psi pump rated 2,000 gpm at 300-ft head. A similar monitor setup is used for washing off the base and abutments to bare rock where the clay core will come in contact.

To seal the area beneath this impervious core, a trench was first cut to solid rock and then carefully grouted. Grouting was a two-part job: (1) Shallow depth consolidation grouting over the entire area of the seal trench, and (2) a deep grout curtain from end to end of trench along its centerline. The first, 10 ft deep, provides a long contact between clay and foundation where water can enter only at the upstream edge. The second, up to 100 ft deep, extends to impervious rock or to such a depth that the path of water under it is long enough to limit the flow to an acceptable amount.

Wagon drills put down the 10-ft holes for consolidation grouting. First they were drilled in a 20-ft square pattern and grouted to 100 psi. Then the procedure was repeated twice more, with holes put midway between previous ones to give a final 5-ft square pattern. To prepare for grouting, an 18-in. length of pipe first was sealed in the top of the 1½-in. dia hole with melted sulphur. This let grouting begin almost immediately, whereas had the pipe been sealed with mortar, a wait of some 24 hr would have been required.

Holes in a single line for the grout curtain were drilled 24 and 100 ft deep and grouted to 150 and 300 psi respectively. The shallower holes were on 20-ft centers along trench centerline, the deeper ones were put down (with a 1¾-in. core drill) on 40-ft centers. Additional intermediate holes were drilled in areas taking appreciable quantities of grout.

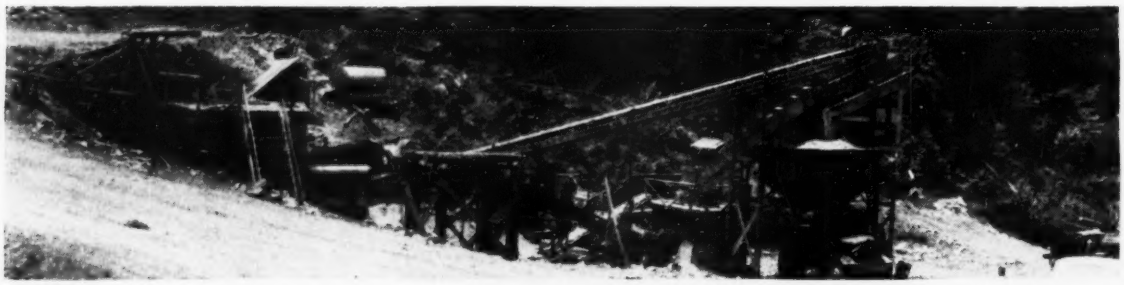
Grouting was started with a mix of one sack of cement to 35 gal of water. Each successive batch pumped into a hole had one more sack of cement added, until a maxi-



GROUTING EQUIPMENT includes two Gardner-Denver pumps and compressor, and job-built agitator. Mixed in agitator, grout flows to old oil drum fitted with connection for pump's intake line.

MAJOR DAM-BUILDING EQUIPMENT

2 Marion 111M 4-yd shovels
2 Lorain 820 2½-yd shovels
1 Lorain L-41 ¾-yd shovel
1 Bucyrus-Erie Hydrocrane
1 Truck crane
19 Euclid 9.8-yd dump trucks
5 Caterpillar D8 bulldozers
1 Caterpillar No. 12 grader
1 Joy Champion 6-in. rotary drill
5 Gardner-Denver & Ingersoll-Rand wagon drills
7 Gardner-Denver & Ingersoll-Rand jack-hammers
1 Joy diamond core drill
2 Ingersoll-Rand Gyro-Flow 600-cfm compressors
1 Jaeger 600-cfm compressor
1 Gardner-Denver 500-cfm compressor
1 Worthington 210-cfm compressor
2 Gardner-Denver grout pumps
2 Fairbanks-Morse 8-in. high-pressure pumps
2 Lincoln 300-amp truck-mounted welders
1 Westinghouse 300-amp stationary welder
1 Truck-mounted 110-v light plant
1 1,125-gal sprinkling truck
1 Fully-equipped grease truck
1 Fuel truck
2 Dodge Power Wagons
5 Pick-up trucks
1 Jeep station wagon
1 Motorola two-way radio setup
1 Crushing plant



CRUSHING PLANT supplies 85,000 cu yd of stone for filters that sandwich the impervious earth core. After being dumped to apron feeder at left, quarry rock drops to 30x42-in. Universal jaw crusher. A 100-ft Universal 30-in. belt conveyor takes material to Simplicity screens atop bins. Oversize chutes to Symons cone crusher, from which 54-ft Barber-Greene 24-in. conveyor returns it.

mum five-sack mix was reached.

To mix grout, Harrison built its own agitator on the job. It was simply an old 55-gal oil drum placed horizontally, with an opening cut in the top. Plates welded around this made a rectangular loading hatch. Holes were cut in the drum heads and fitted with bearings for a horizontal shaft carrying two mixing paddles cut from sheet steel. To drive the mixer, the drum shaft on an air tugger hoist was coupled through two universal joints to the paddle shaft. Air for driving the tugger came from the same Gardner-Denver 500-cfm compressor that operated the G-D grout pumps.

Final grouting figures were 25,000 lin ft of hole and 4,000 bags of cement. One 100-ft hole alone took 79 bags, although many holes took practically none.

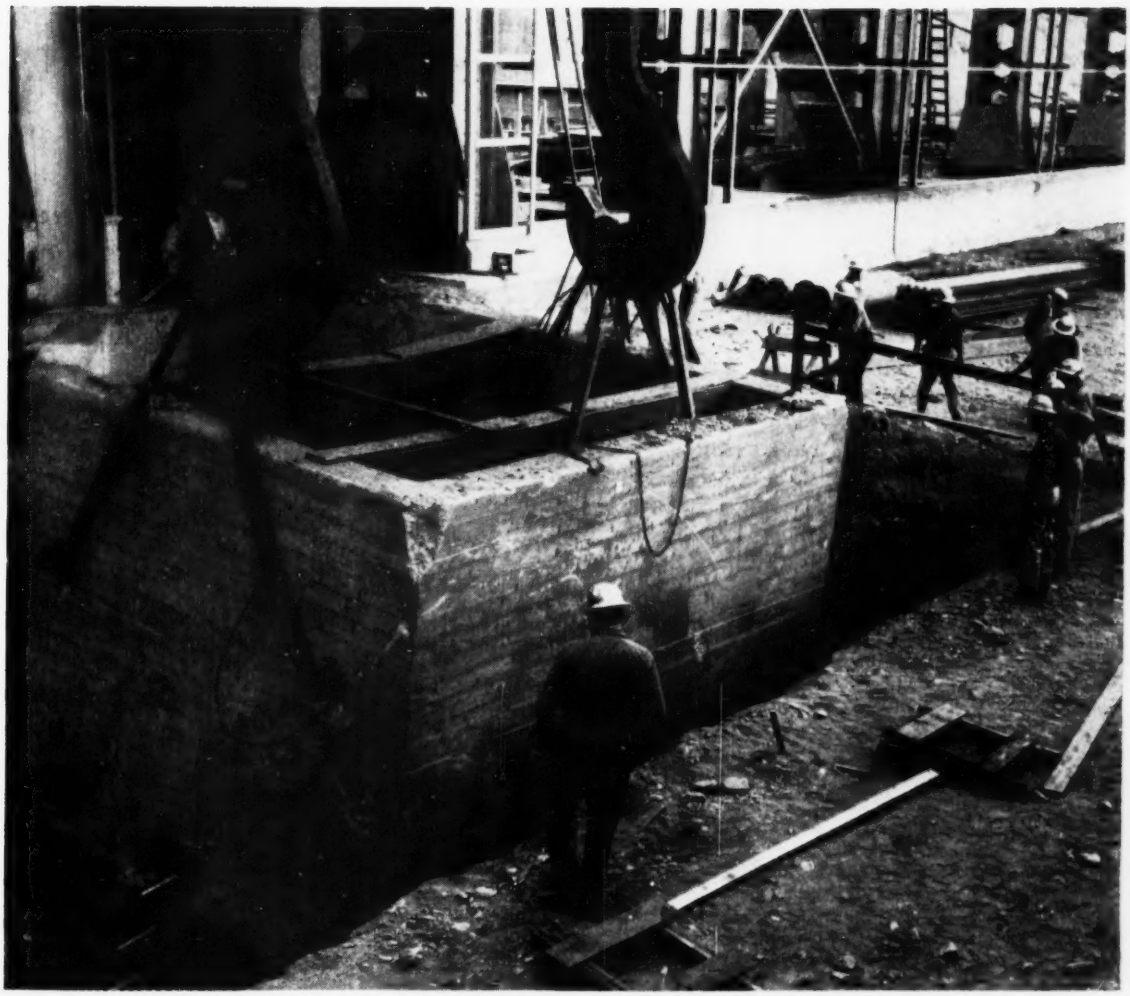
The impervious core goes on top of the grouted foundation. Clay for this is trucked from pits near by and spread in 8-in. layers. Eight passes with an oil-filled sheepsfoot roller (600 psi) drawn by Cat D8 brings the material to between 94 and 96% of optimum density. Moisture content is kept close to 24% by sprinkling the clay during dry weather.

Also carried up with the clay core are the filters that sandwich it. The 3 in. crusher-run material next to the main rock fill is just dumped from the top of slope and allowed to slide down. But the rest of the filter material (½- to 3-in. and ½-in. minus) must be trucked and dumped directly into place in horizontal layers. All of the upstream filter is handled in this latter fashion.

The 85,000 cu yd of rock for filters is quarried from the lower spillway cascades and crushed to size. The plant includes a Universal apron feeder and 3042 primary jaw, a Symons 4½-ft short-head secondary cone, a Simplicity three-deck shaker screen and a Universal three compartment bin. Crushers are belt-driven by two Caterpillar diesel engines.

Like most of the filter material, the quarry-run upstream blanket must be truck-dumped in horizontal layers. That's both because of its flatter slope (2.2 on 1) and to prevent disturbing the upstream filter. When core, filters and blanket reach the present top of main rock fill (El 2530 to 2540) the upper 40 ft of dam will be similarly placed in layers to complete the embankment. Present estimates are that it will begin storing water this October.

Resident engineer on Aluminum Company of America's neat Bear Creek Project is John Muhlheizler, assisted by Boyd Smelser and Dick Hayes. Harrison Construction Co.'s project manager is Dean Simpson, superintendent is Gene Robinson and project engineer is Marshall Elam.



SALVAGED CONCRETE BOX is eased to a new foundation inside a California steel plant. Its weight of 211 tons is handled by an overhead crane with two hooks holding the load suspended on multiple wire ropes passing through holes in the sides.

Second-Hand Concrete Pit Brings a Tidy Construction Saving

THE MONEY SAVED amounted to about $8,000. The sum may appear insignificant in the shadow of the over-all job—a $65,000,000 expansion of the Kaiser Steel Corp. Fontana plant in California—but it is a substantial saving.

A ninth open-hearth furnace was to be added to Kaiser Steel's existing battery of eight. The work included extension of the open-hearth building and the construction of a new ladle lining pit with reinforced concrete to receive the huge ladles that carry molten steel from the open hearths when they are taken out of service to get new refractory linings. Under the expansion program, one of the ladle lining pits was to be abandoned.

The contractors, Kaiser Engineers of Oakland, decided that the existing pit could be salvaged. With a 250-ton overhead crane available, they figured to move the used pit to the new site.

A check of original designs showed that it should weigh 211 tons, figuring concrete and reinforcing bars. Two holes driven through each of two opposite sides received lifting cables for the crane hooks. Two heavy timbers, spanning the pit between the two lifting walls, gave extra stiffening at stress points as the cables tightened.

Preparations for the move included extension of the building and the crane trackway. After the new hole for the floor pit had been excavated, seven steel billets were set to grade on the bottom and the pit lowered on them. It then was shimmed until level, low forms erected around the perimeter and a foundation grouted in.

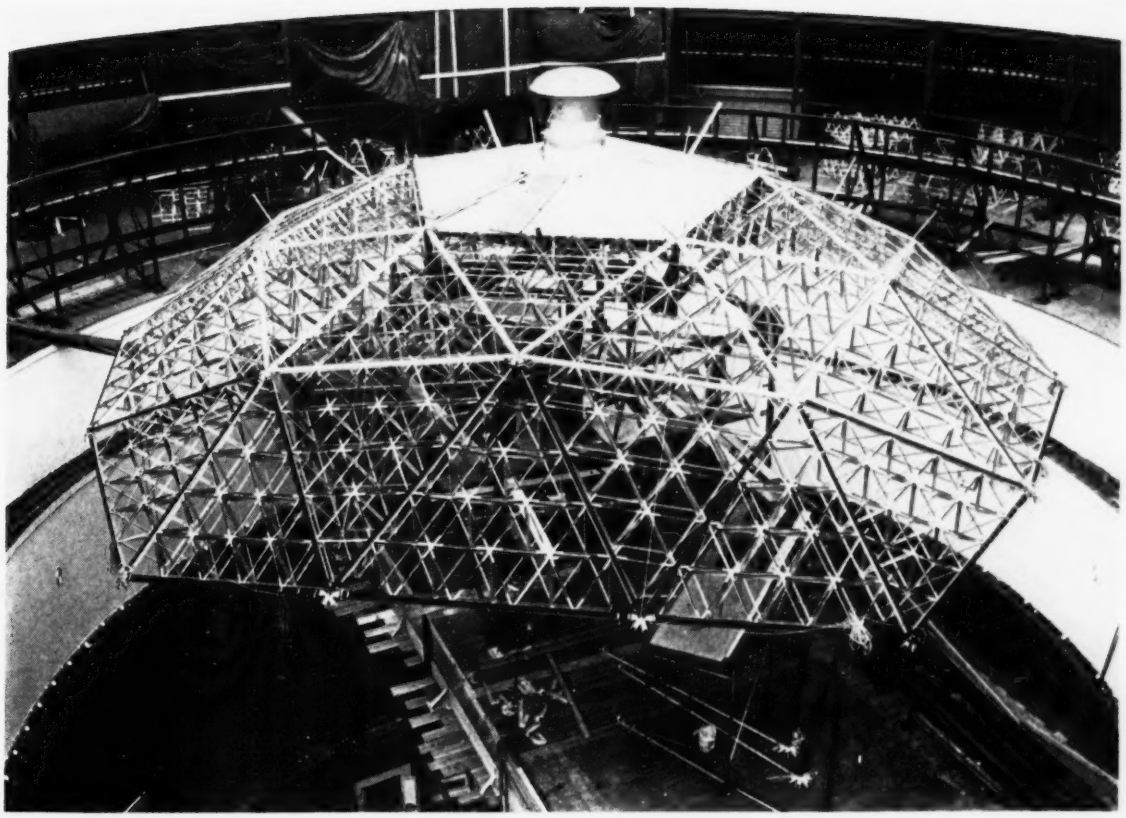
A. L. Fischer is construction manager for Kaiser Engineers.



(Photos from Ford Motor Co.)

Spinning An Aluminum Spiderweb

By HAROLD W. RICHARDSON, Editor



GEODESIC DOME of aluminum spars and ribs shapes up as 93-ft dia roof of Ford Rotunda at Dearborn, Mich. Structure consists of 160 triangular trusses, each made up of 10 octahedra. Trusses, erected from platform at top of steel tower, are balanced on rotating top of telescoping steel mast that is jacked up as each additional ring of trusses is erected.

JUST AS STARTLING as the design of the 93-ft aluminum-truss geodesic dome now covering the inner court of the famous Ford Rotunda at Dearborn, Mich., are the several schemes proposed for its erection, and the clever procedure finally adopted. The structure, designed by R. Buckminster Fuller, is made up of light aluminum spars fabricated into triangles, then into octahedra, then into triangular trusses. The trusses, held together by aluminum hubs, ribs and spines, form the dome that resembles a huge umbrella.

Plans for erection were complicated because the dome, when completed, weighed 300 tons. Neither octahedra, then into triangular crane or derrick equipment could be brought into the inner Rotunda court because of the small entrances, nor could cranes work from the outside because of height of outside walls. Fuller came up with several erection schemes, based on erection on the ground outside, then moving the completed dome to place. One plan was to inflate a helium-filled balloon under the dome, then pick it up with a few more helium balloons. Another scheme was to borrow military helicopters for the lift.

Finally, the Ford Plant Engineering Office, under the supervision of director J. A. MacAlarney, took the matter in hand and came up with a practical scheme of erecting the dome from top of a steel tower within the Rotunda. This is the plan that prevailed.

The Ford Rotunda, moved from the Chicago World's Fair to Dearborn, is a circular structure of two concentric walls, 60 ft apart, plus a couple of wings. The annular space between walls was roofed over as an exhibit space, but the inside circular court, 93-ft dia, was left open. Plans for Ford's 50th Anniversary celebration, starting in June, call for covering the inside court to create additional exhibit space. Fuller worked out the dome roof, to be set on a parapet above the inside wall 60 ft above court floor, with the dome rising 48 ft above its base.

The basic unit making up the trusses is a thin, ribbed aluminum spar about 3 ft long, of which 19,680 pieces were required. As there are six slight variations in length and hole punching, the spars were delivered to the job prepunched and marked for identification with different colored plastic tape strips. Fabrication at the site was simple. Workmen assembled three spars into a triangle with aluminum rivets by hand or with power riveters, joining blue ends to blue, red to red, etc. Colored tapes at center of spans automatically designated type of triangle formed. Three triangles riveted together with three additional spars, also identified by color, formed an octahedron. Ten octahedra made up a triangular truss section. Some 160,000 rivets were required.

The annular roof spanning between the concentric walls proved to be an ideal fabricating area, even though 60 ft above ground. A stiff-leg derrick mounted on top of the main entrance foyer transferred all materials from trucks to the roof. Besides being a perfect working space, this fabricating area had the advantage of being close to the dome in its final position.

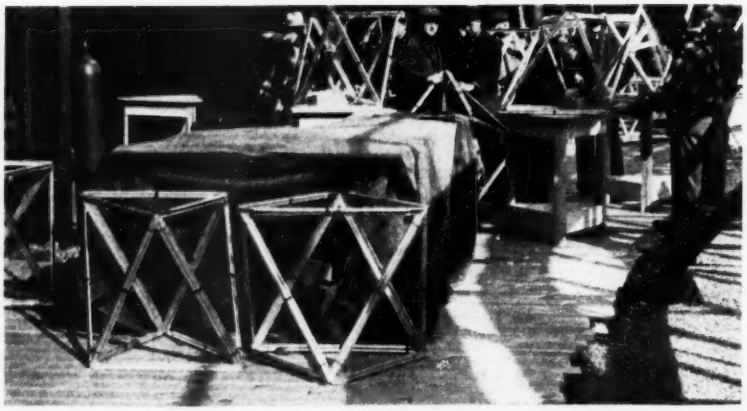
The erection scheme worked out

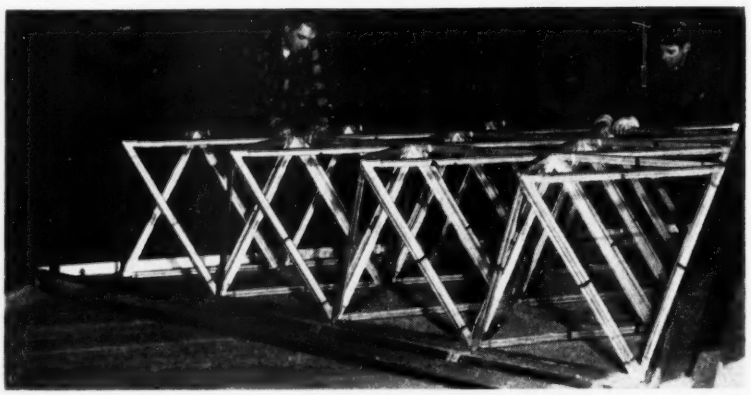
by Ford was a honey. They built a steel tower in the center of Rotunda, flaring out at the top to support a 30-ft platform spanning across the circular opening at fabricating floor level. Rising up through the center of the tower was a telescoping square mast, formed of four 12-in. wide plates, pierced in two opposite sides by 1¾-in. pinholes spaced 6 in. apart. At top of tower was a jacking frame carrying two 12-ton Dayton hydraulic jacks. The mast could be pinned at any elevation desired by a 1½-in. pin.

At top of mast was a revolving head carrying a steel spider of five legs. At start of erection, the spider was just above platform level. Five aluminum ribs were fabricated into a crown vent casting, and then the top five sets of triangular trusses were dropped into place between ribs and bolted together. Rib sides were beveled to hold the trusses by wedge action until they could be bolted.

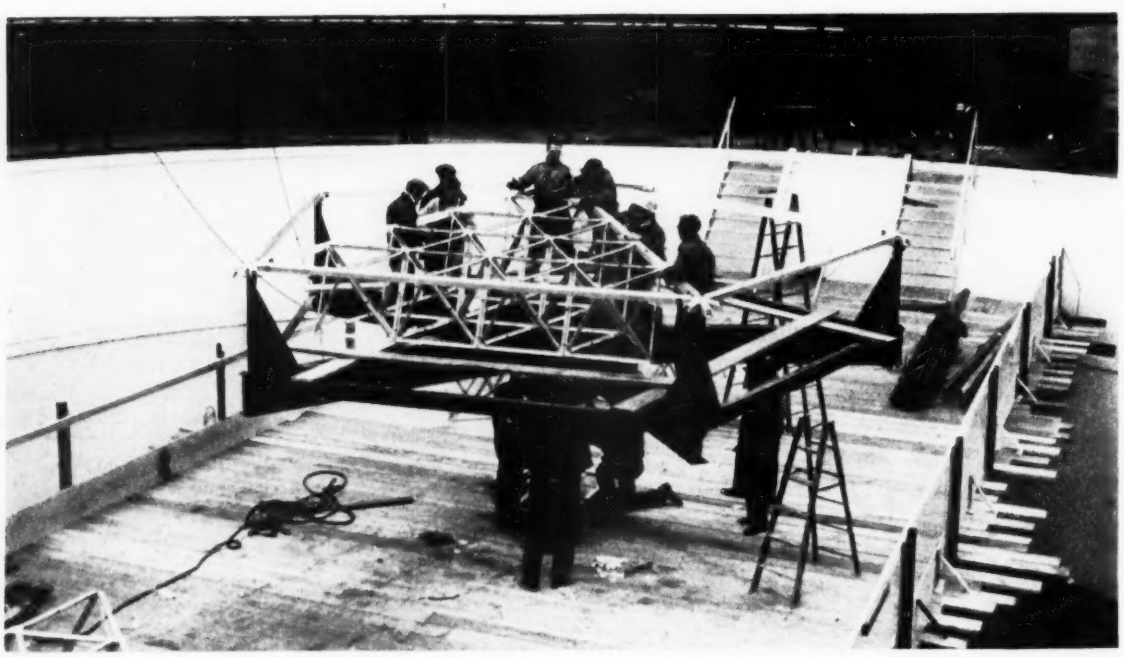
The rib framework was then extended with rib extension and horizontal spines, bolted together through aluminum hubs. Then the second ring of triangular trusses was erected from platform level, with the whole assembly being rotated by hand as necessary, to bring point of work over the platform.

From then on, the erection pro-

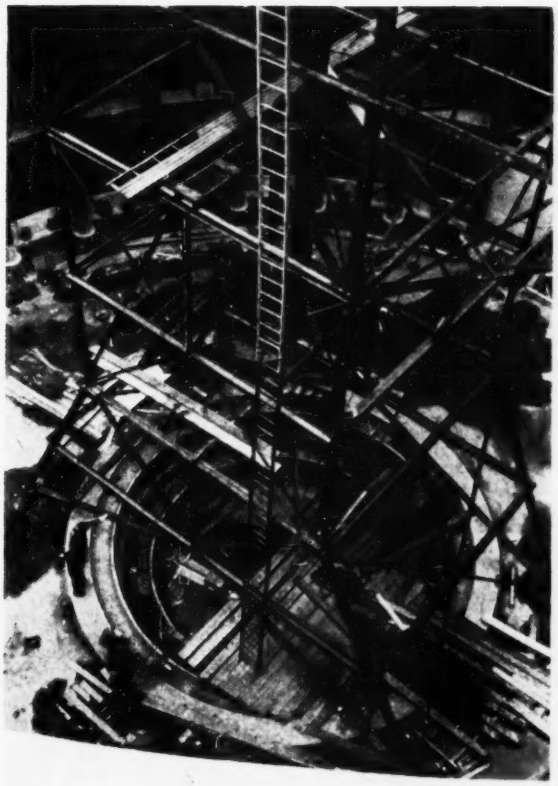




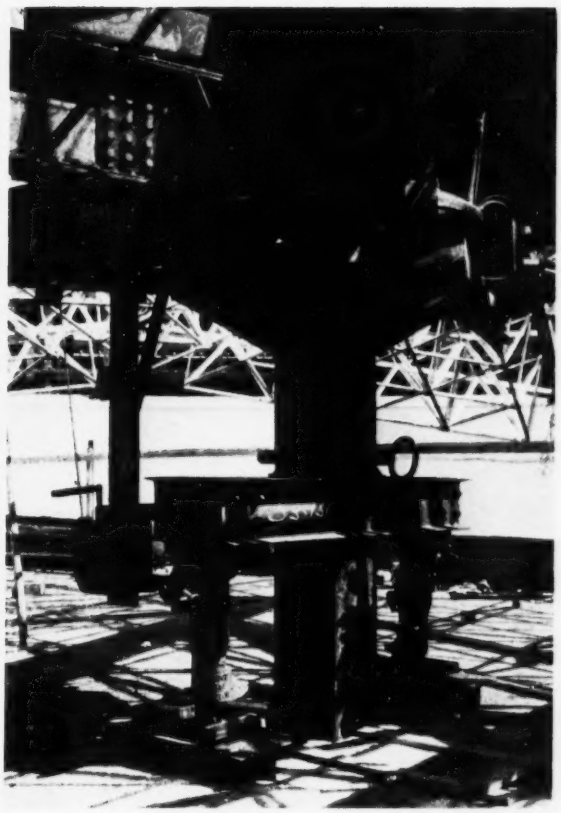
TRUSSES ARE FABRICATED on annular roof surrounding inner court when dome is being erected. Top: Aluminum spars, identified by colored tape, are riveted into triangles, then three triangles, along with three more spars, make up an octahedron. Bottom: Ten octahedra then form a triangular truss, fully fabricated with aluminum rivets.



ERECTION STARTS with placement of first of five triangular truss sections between aluminum ribs carried by steel spider. Fixed platform, spanning top of circular court, is supported on the steel tower. Truss sections are easily handled by two men; no hoisting equipment is required, as trusses are handed down to platform from fabricating floor in background.

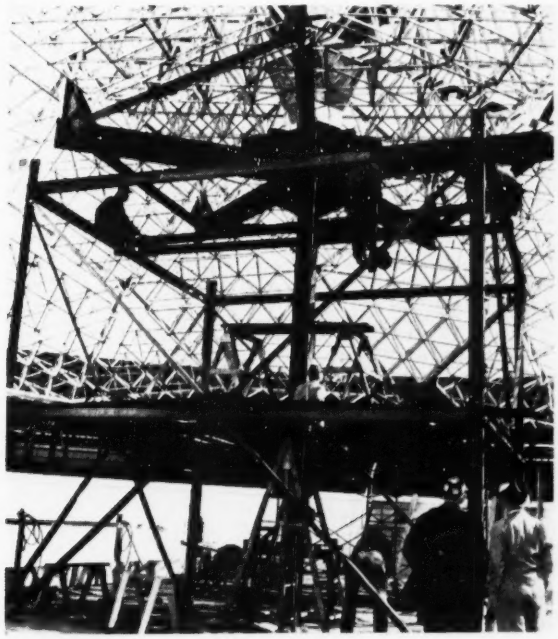


DOME ERECTION is from steel tower built up inside Rotunda court to height of 60 ft. Rising through center of tower is telescoping mast to be raised by jacking as dome is built up. Small entrances to court prevented use of conventional erection cranes.



TOP OF MAST carries steel spider on revolving head. Here top of turntable is clamped to base to prevent accidental rotation. Mast is raised up by two hydraulic jacks in 6-in. increments; can be pinned at any elevation desired.

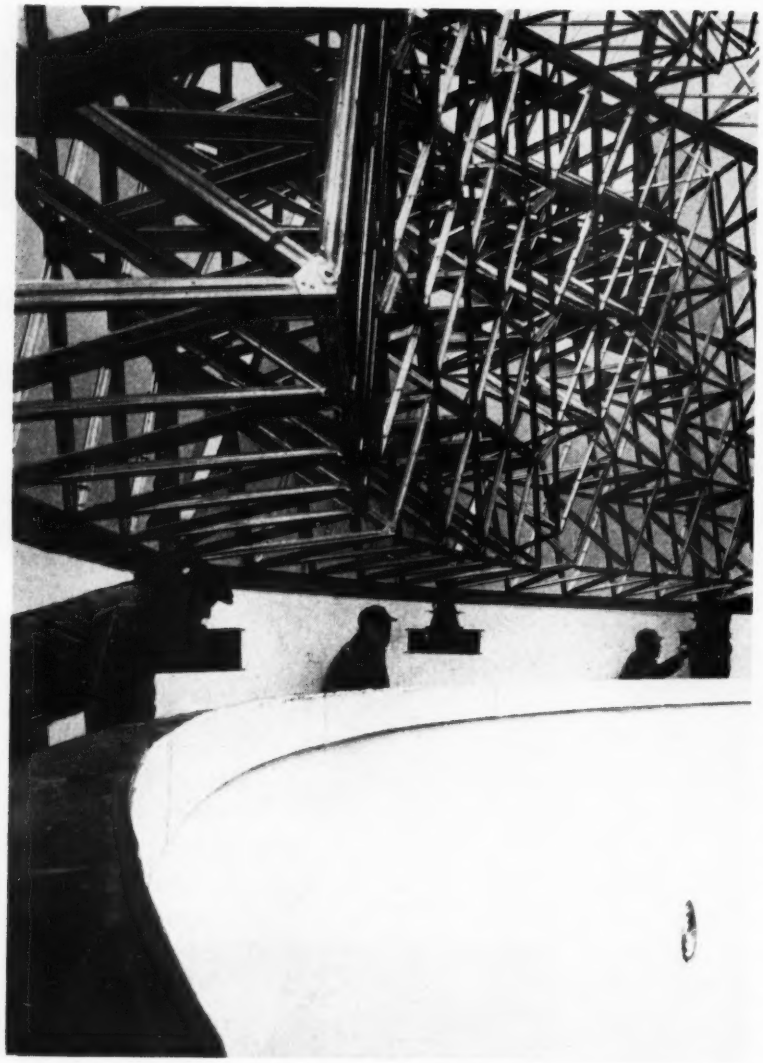
(Continued on page 64)



AS EACH RING of trusses is added from below, dome grows wider and mast is jacked up to raise structure clear of working platform so next ring can be added. Whole dome rotates so working point can be kept above platform. Tower is extended above platform one bent at a time for bracing top of mast.



GRAFTING OF PLASTIC SKIN to outside of dome begins to catch up with erection after early lag due to material delivery delay. This aerial view shows how dome will be hidden from outside view by reflector walls at top of Rotunda. Derrick for transfer of all material to fabricating area sets on top of front entrance foyer.



DOWN SHE COMES. Completed dome, with shoes in place, is lowered on to ledge by reverse jacking, only five weeks after construction started.

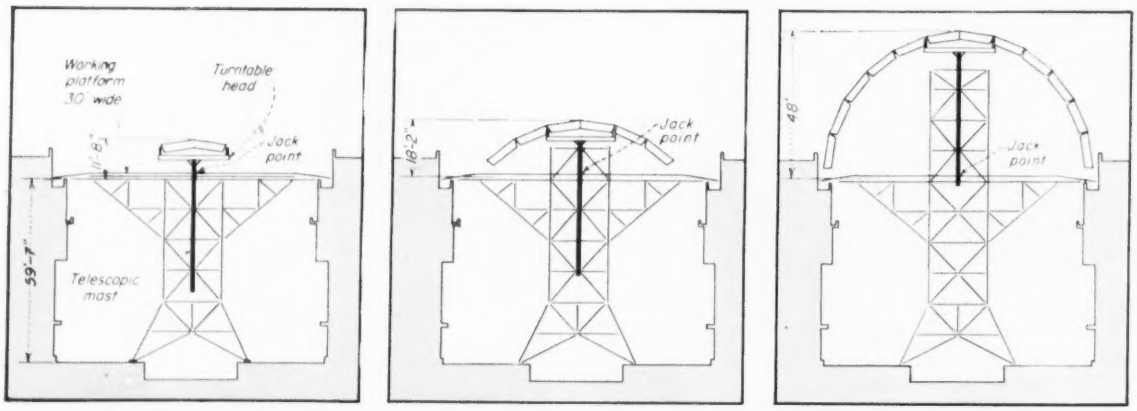
cedure was just like building a huge umbrella from the top down. To obtain clearance above the platform for the third ring of trusses, the masthead was jacked up a few feet and re-pinned. At the same time the center bay of the steel tower was extended to brace the top part of the mast. This sequence was repeated until all six rings of trusses had been erected, with the whole assembly being rotated at will to enable all erecting to be done from the platform. The tower was extended 3½ bents upward by end of job. Framing the 160 triangular trusses into the dome required 7,000 stainless steel bolts.

Final step in erection was to bolt 20 steel shoes to bottom of lower ring, then lower the whole dome by reverse jacking until the shoes came to rest on a prepared ledge on top of inner court wall. The shoes were then bolted down to steel plates on the ledge. The entire dome weighs only 17,000 lb. yet, designed like an airplane structure, will support a heavy load, far beyond the calculated maximum snow load. Construction started March 23, and was completed April 29.

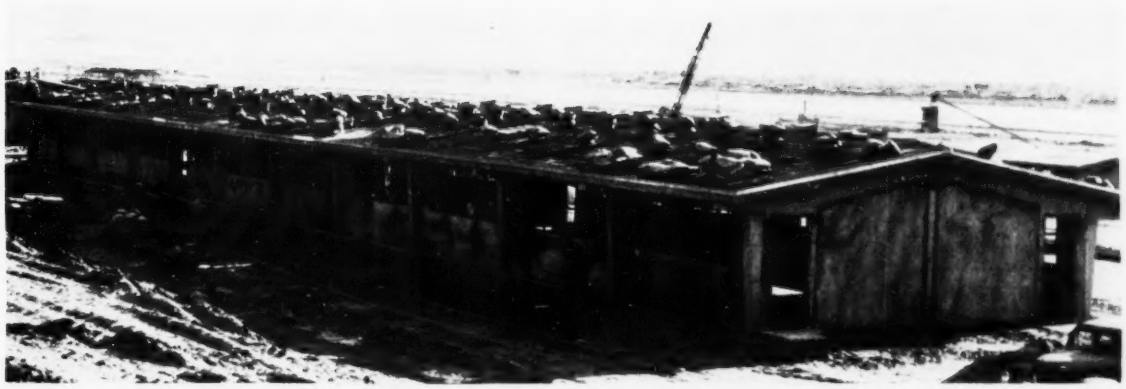
External covering is 160 triangular sheets of transparent polyester resin plastic, reinforced with a fiberglass mat, all 1/25 in. thick.

The pictures and drawings show details of fabrication and erection.

For Ford, Frank J. McKenna was resident engineer and Dean Linfor administrative engineer. Structural engineers were Laucomer and Manser, Detroit. Dome construction was handled by J. Brodie and Son, Inc. George Welsh was project representative for Fuller.



STEP-BY-STEP ERECTION PROCEDURE. Left: Steel tower setup inside Rotunda carries working platform 60 ft above ground. Telescopic center mast can be jacked up as rings of trusses are erected from platform. Top of mast carries steel spider on turntable for rotation of dome to keep working point over platform. Top ring of five triangular truss sections are in place here. Center: Mast has been jacked up to allow erection of third ring of trusses from platform. First extension of tower above platform is in place as mast bracing. Right: Sixth and last ring of trusses is in place to complete dome. Mast has been raised to top limit.



Roofing material awaits placing on concrete Marine Corps . . . Navy photos

Barracks Erected With Vacuum Lift

PRECAST CONCRETE MILITARY BARRACKS built on a production line basis are keeping costs down at Twenty-Nine Palms, Calif. The $12-million Marine Corps base under construction by a joint venture of Ford J. Twaits Co., Morrison-Knudsen Co., Inc., and Macco Corp. will house 7,500 marines.

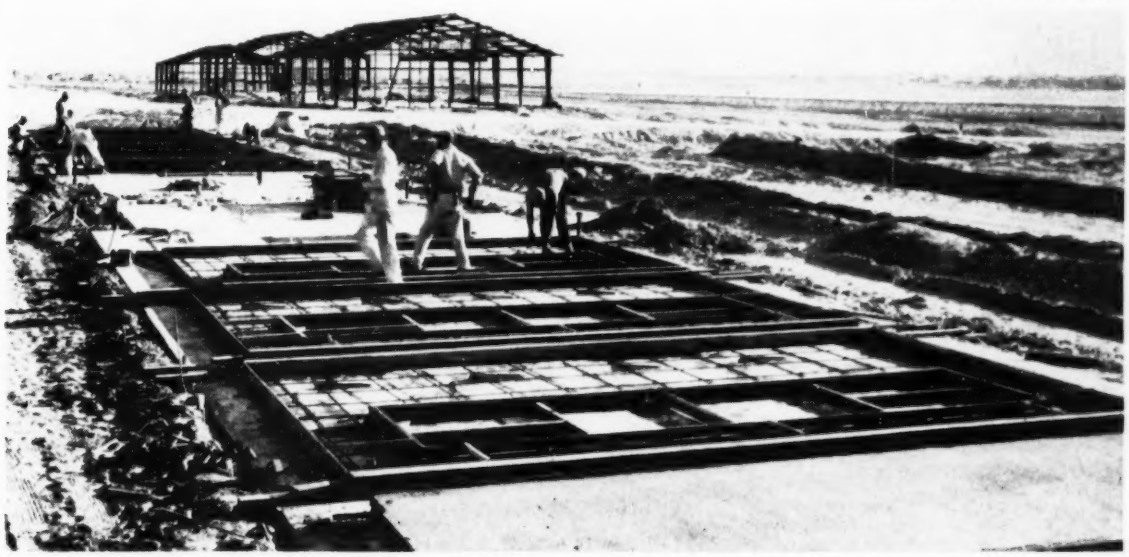
The contractor has kept the cost to a minimum by use of mass production techniques centering around vacuum lift of concrete slabs. A typical 96-man barracks building—76 such units are included on the job—complete with central heating and evaporating cooling systems, is built for $8.10 per sq ft or about $600 per man housed.

Besides the barracks the work includes six battalion administration buildings, six 1,000-man mess halls, six construction buildings, twelve storehouses, ten officers quarters buildings, and officers mess, infirmary, regimental and camp command buildings, theater and recreation buildings, post exchange buildings and electric, power, water and sewage works.

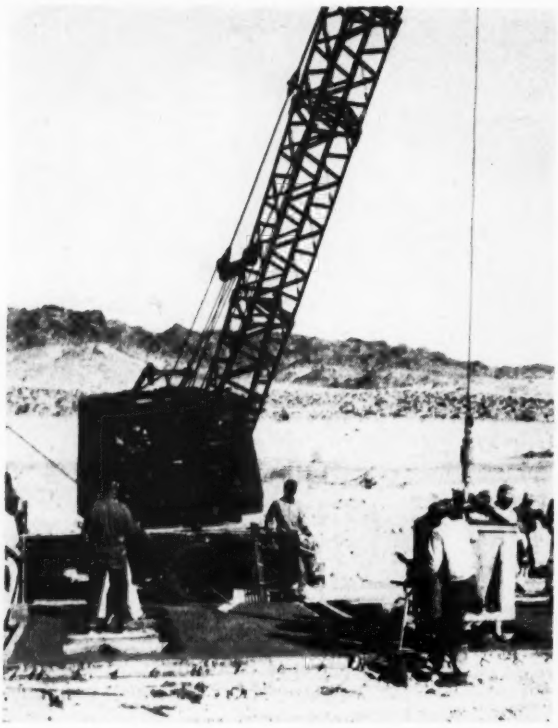
Much of the special equipment was developed by the contractor. That includes steel pan forms for roof slabs. Also developed was the Hyster straddle truck that mounts vacuum lift equipment. It has a 15-ft span width and 12-ft vertical clearance. (See also CM&E, March 1953, p. 126.) The vacuum equipment was provided by U. S. Flare Corp.

Project manager for the contractor is D. G. Hall. The work is under the direction of Captain A. I. Flaherty, District Public Works, 11th Naval District, who is serving as officer in charge of construction. Comdr. W. M. Enger CEC, USN, is resident officer in charge of construction, and Lt. Comdr. John Mapes CEC, USN, is assistant resident officer in charge of construction at the site.

(More photos on page 66)



WALL PANELS are cast on top of completed floor slabs, then tilted into position when roof bents are to be poured. Project calls for 76 barracks and numerous other administration, mess hall and service buildings such as shown framed in steel in background.

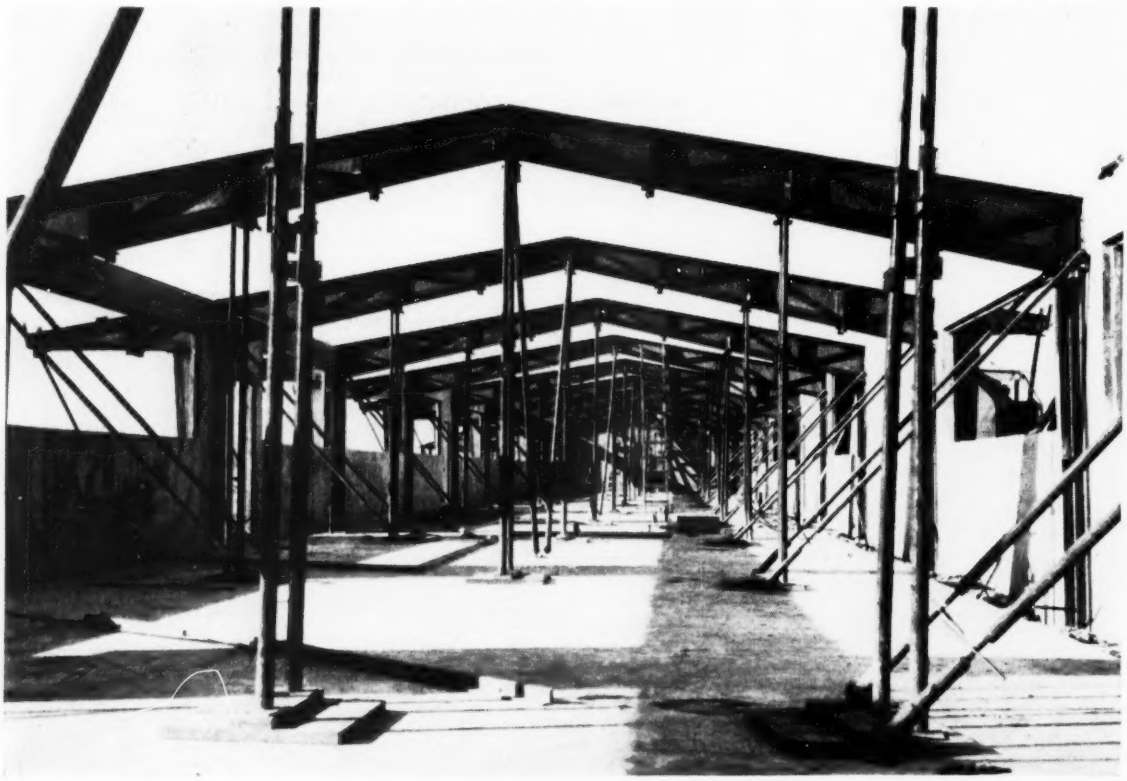


WALLS ARE POURED with a ¾-yd Gar-Bro bucket handled by a Lorain Moto-Crane. Mix is dumped into the bucket right at casting site—brought by International trucks and Daybrook bodies.



WALLS ARE SET UP in shallow trench near floor slab. Floor later is extended to wall. A Northwest 95 crane with vacuum pump and lifting pad handles the wall panels.

(More photos on paeg 68)



ROOF BENTS and wall columns are poured after walls have been set up, braced by adjustable Patent Scaffolding units. Acro shores support forms for bents which are faced with plywood and backed with steel angles and used repeatedly.

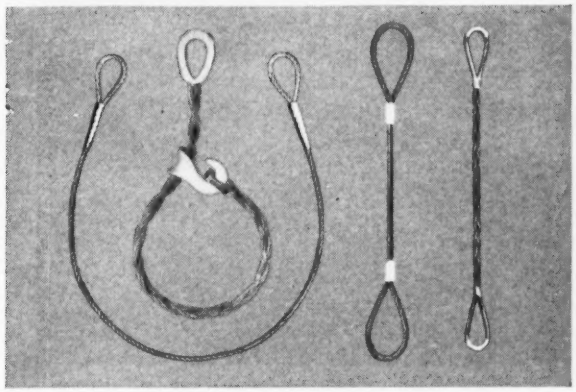


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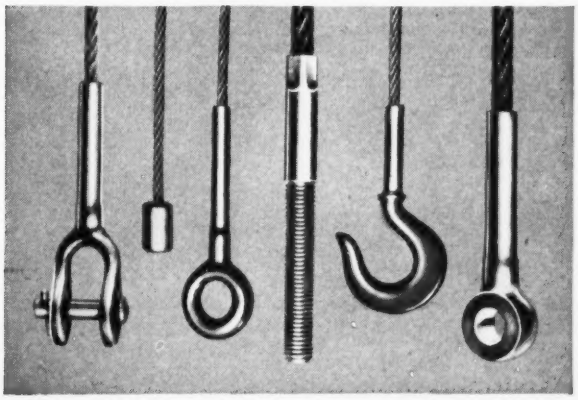


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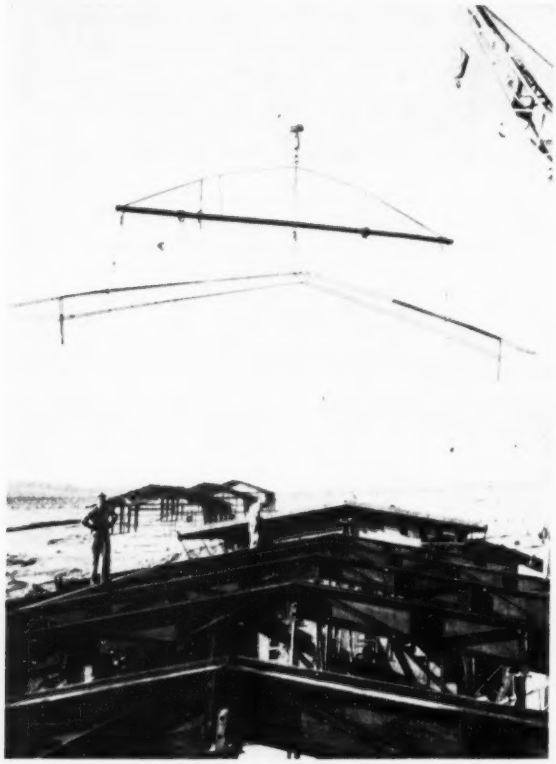




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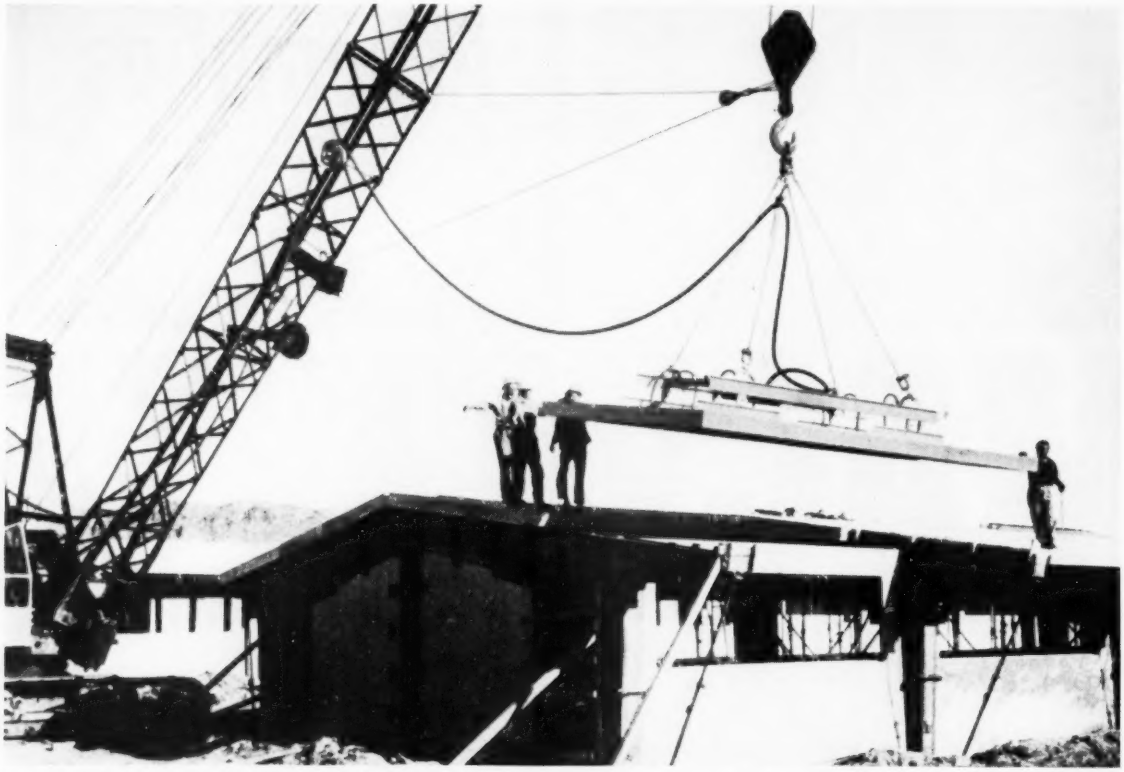
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REINFORCING CAGE, pre-assembled on the ground, is swung overhead and lowered into forms for roof bent. Barracks floor slabs are poured directly on compacted sandy soil.



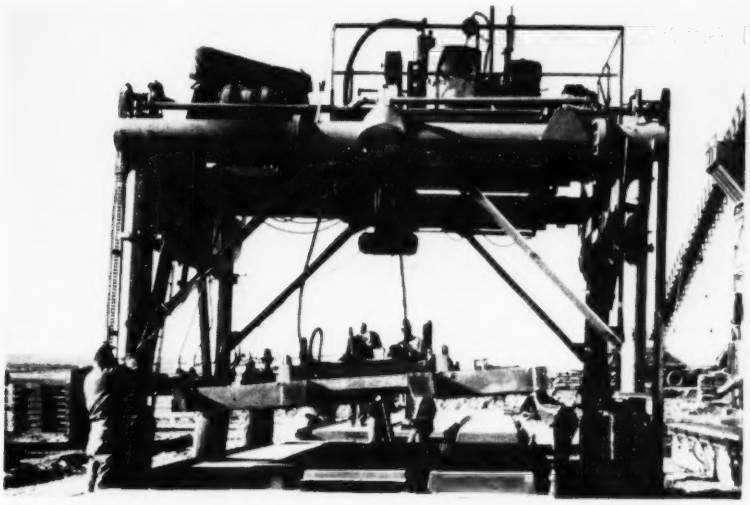
CONCRETE IS MIXED in Conveyco plant with a Koehring mixer. Cement is brought in by truck, elevated into cement storage silo at rear. Tarpaulins cover curing roof slabs.



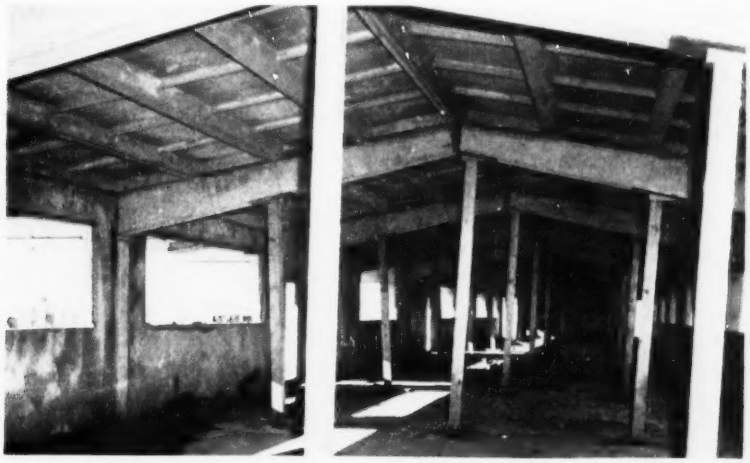
ROOF SLAB is lowered neatly into place with a vacuum pad on the Northwest 95 even before roof bents have cured enough to take the full load. Supporting braces still remain in place on inside of building and on the overhang of the bents on the outside.



STEEL PAN FORMS are used in the casting yard to pour waffle-shaped roof panels. Forms were designed specially for this job to get desired strength and weight saving for roof.

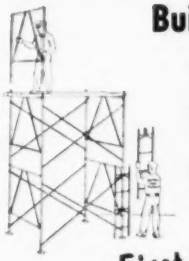


OUTSIZE STRADDLE TRUCK with vacuum lift equipment pulls roof slabs out of forms and stacks them for final curing. Special truck was modified out of a standard Hyster unit.



BASIC STRUCTURE COMPLETED, roof slabs in place and all joints grouted. Wood supporting posts under roof bents remain until concrete has developed full strength.

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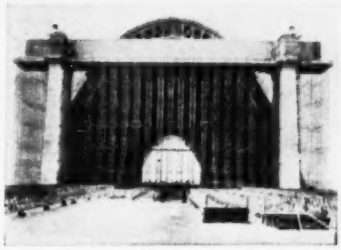


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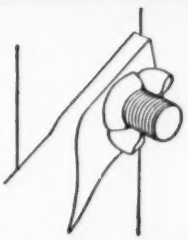
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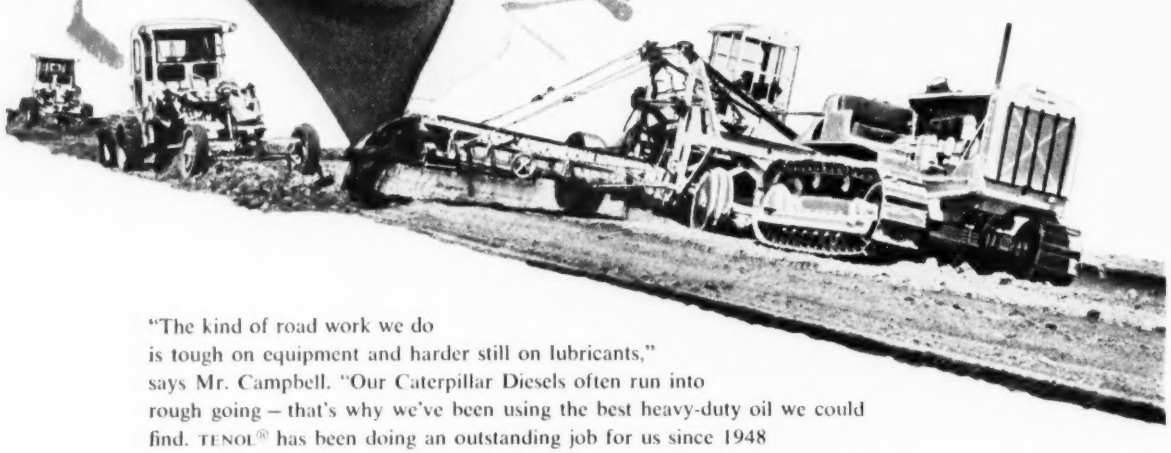
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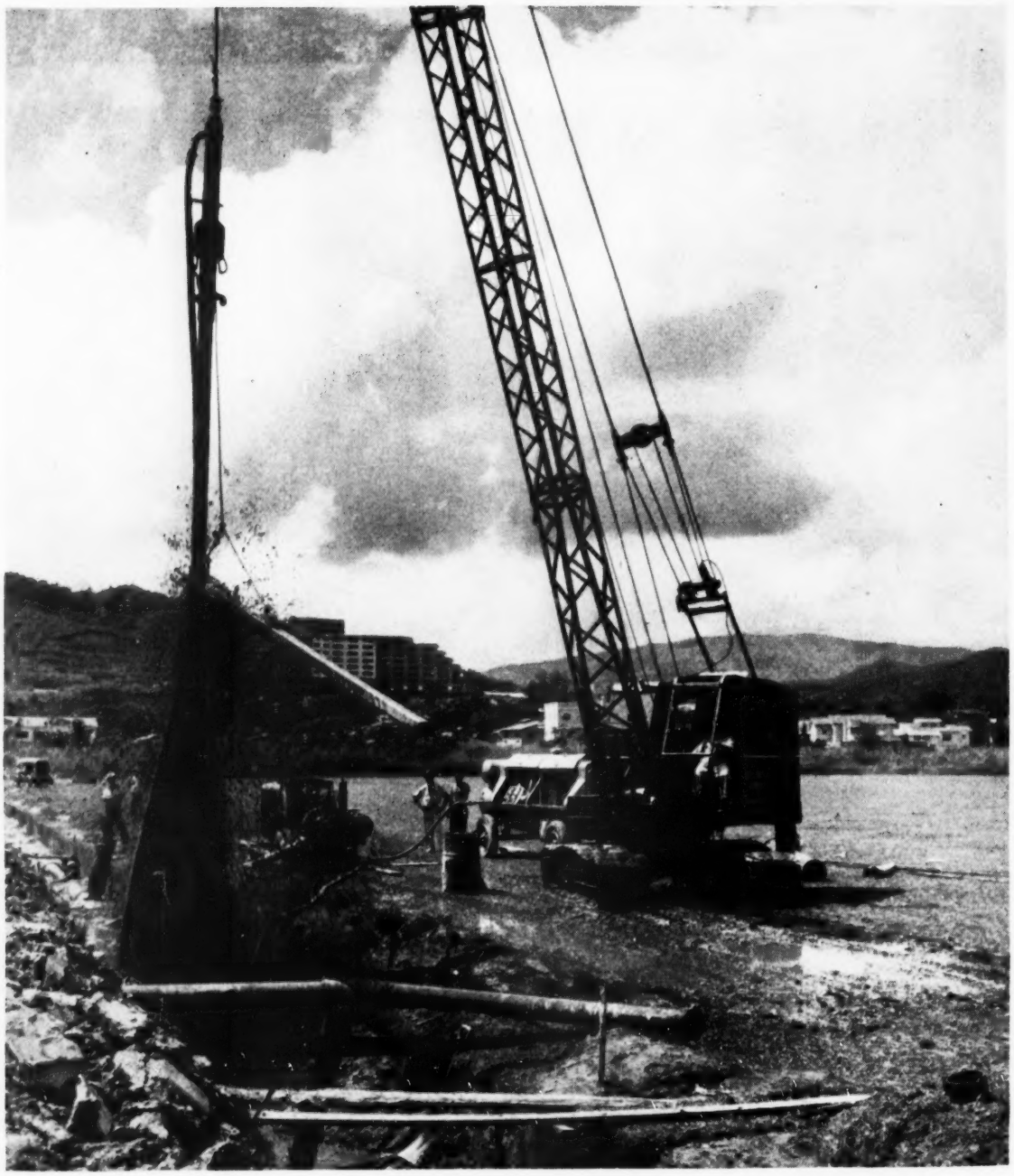
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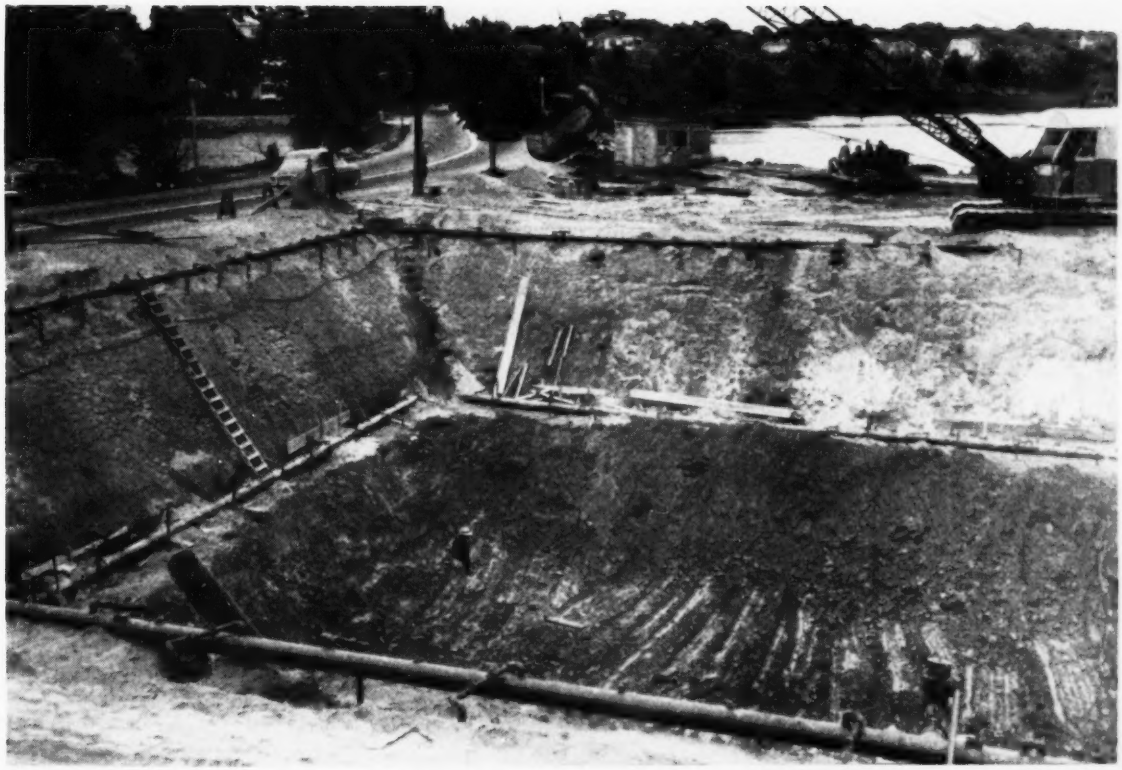
HOLEPUNCHER JETS WELL for 2.8-mgd water supply in Caracas, Venezuela. Jet water is supplied by a Moretrench GM diesel-powered Jet-Well pump; air by Gardner-Denver 500 compressor. Lima crane regulates vertical travel of the 50-ft holepuncher.

Wellpoints Can Do Many Jobs

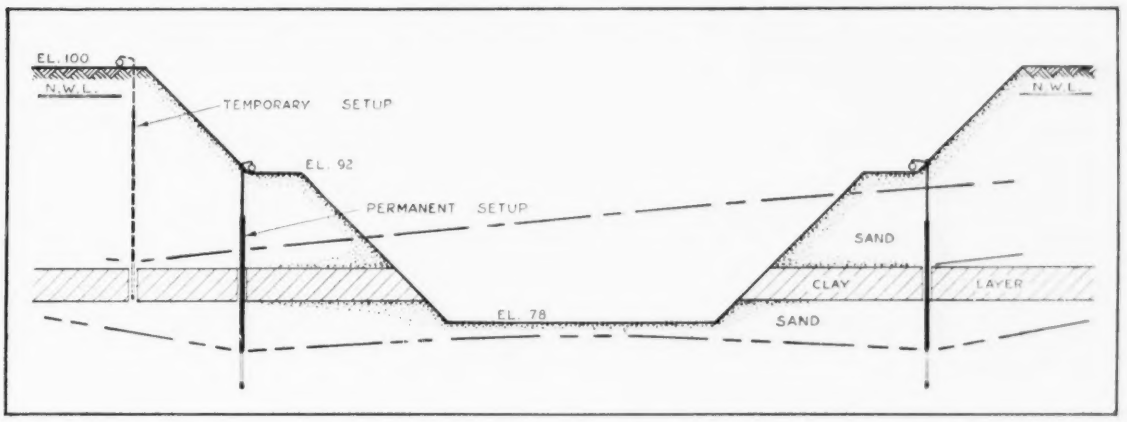
By BYRON J. PRUGH,
Assistant Chief Engineer, Moretrench Corporation

WELLPOINT SYSTEMS are best known for their ability to dewater designated areas so that excavation and construction can proceed "in the dry". But their use is extending increasingly into soil stabilization, relieving dams and levees of internal water pressures and creating new supplies of pure water for industry and municipalities.

For dewatering, wellpoint systems differ from open pumping and gravity wells in that, if a sufficiently high vacuum is maintained in the system, a low-pressure area is created around each wellpoint screen. This low-pressure area allows the atmospheric pres-



DEWATERING FINE SOILS with a two-stage wellpoint system removed 22 ft of water for construction of the Watchemoket Pumping Station, East Providence, R. I. Material was extremely fine sand and clay and no sheeting was needed, although excavation was adjacent to a lake. Pumping stabilized the saturated silt sufficiently in less than two days to start excavating in the dry.



TYPICAL INSTALLATION of parallel wellpoint lines (at El. 92) for a 22-ft excavation. Temporary line at left, at El. 100, lowered water enough to excavate first 8 ft. Broken lines indicate lowered water levels established by pumping.

sure to act through soil voids and literally push the water into the wellpoint and up into the pump.

The greatest limiting factor is permeability of the soil. In fine-grained soils, such as silts, atmospheric pressure is aided by the weight of soil and capillary attraction.

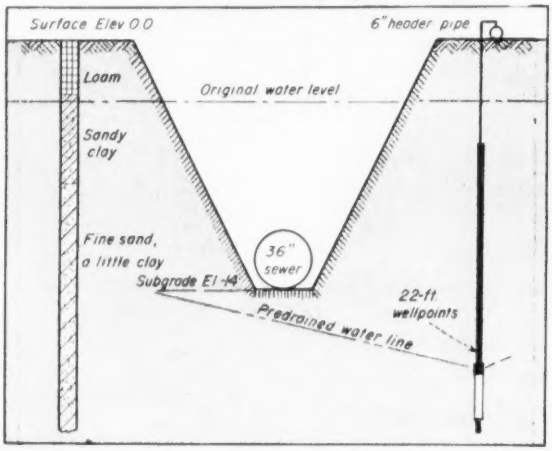
When wellpoints are operated in a line connected to a header, the entire ground water level is depressed, not as the lowering of a plane, but rather as an elongated conical depression. With two parallel lines of header and wellpoints, or when an area is surrounded by a continuous installation, the interior arcs intersect and flatten to a gentle curving water level.

For maximum efficiency in operation at a minimum cost, a wellpoint system requires the right equipment, best layout design and correct installation.

• **Pumps are basic to a wellpoint system.** The number of pumps required depends upon the size of the job, but there are many small jobs like sewers and tank pits that need only one combination jetting and wellpoint (Jet-Well) pump. Contractors will recognize basic job insurance in having a spare pump to take over in case of shutdowns due to circumstances



JET-WELL PUMP powered by 6-cyl Hercules gasoline engine handles 400 gpm at 140 psi for jetting and 1,300 gpm at 100-ft head for pumping on wellpoints. Pumps must be rugged, dependable.



ONE LINE of wellpoints draws down the water table sufficiently for a typical sewer line installation. To keep job moving, as more points are jetted, pump must do two jobs at once.



SAND FILTERS have been poured around these wellpoints put down into fine-grained soil. Extra-size holes, measuring 10 in. across, were reamed larger than normal with jetting chains.

beyond control. Therefore, in the following discussion, the reference will be to "pumps."

Pumps must be capable of handling sufficient volumes of water against the maximum dynamic head expected at their best operating efficiency. They also must be equipped with an easily accessible vacuum pump, able to maintain a high vacuum at all speeds, able to pass air and water and to function efficiently if abrasives (such as sand) or corrosive water are present. A wellpoint pump must be self-priming at all times; have a float chamber to separate gases, air and water vapor from the water, yet prevent water from entering the vacuum pump; be self-lubricating and sealing for minimum maintenance.

It should be mounted on a sturdy steel base to minimize vibration and heavy enough to overcome normal thrusts. For mobile work, it can be equipped with either steel wheels or pneumatic tires, adequate steering apparatus and brakes, as required. The power plant can be diesel, gasoline or electric, to suit the installation, quantity of water and availability and cost of fuel.

The Jet-Well series of pumps was introduced years ago to allow the same pump to be used to install wellpoints by jetting and to pump on the wellpoint system.

This pump also can do both functions simultaneously. When pumping on wellpoints, part of the discharge water is used to jet additional wellpoints, invaluable on continuous sewer or pipeline construction.

Wellpoint pumps are connected to a steel header pipe of the correct size, suitably protected against corrosion. Header pipes should be heavy enough to withstand construction abuse, but light enough for easy man-handling. Aluminum pipe has been used on some systems where its light weight was especially desirable. The header pipe surrounds or parallels the area to be dewatered or stabilized. From the header pipe wellpoints are self-jetted into the ground at the correct spacing and to the proper depth.

• **Wellpoint screen sections** must have not only a large surface area but also what is known as a large open area, to pass directly the maximum amount of water at the lowest velocity. Experience has shown that, except in certain special cases, wellpoints less than 2.5 in. in outside screen diameter, and able to connect directly to standard 2-in. riser pipes, are inefficient. Smaller diameter wellpoints in pervious soils have large entrance velocities and excessive friction losses. In fine-grained soils, the open area

(Continued on page 77)



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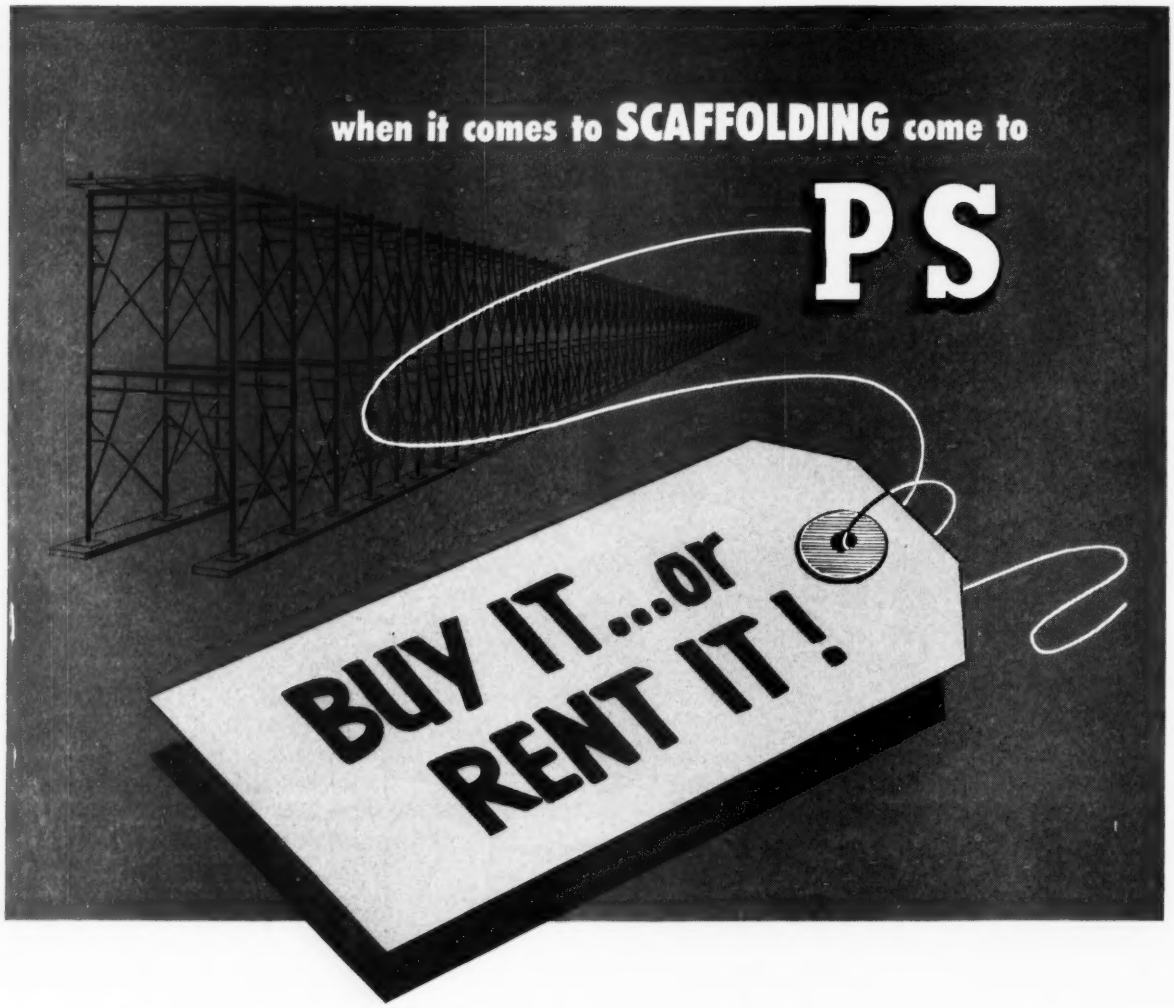
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SEVEN LINES of wellpoints were used at one point in the construction of a 2,460-ft cutoff wall for the Neversink Dam, a rolled-fill structure in New York. Foundations were put down in open cut through 90 ft of water-bearing sand, gravel and clay. Contractor S. A. Healy Co. used five lines of wellpoints on the upstream side and two lines downstream of the trench.

is insufficient for correct application of the vacuum principle over the desired minimum area.

• **Double-valve, self-jetting wellpoints** do the job best. For best performance in final operation and rapidity in jetting, all jetting water should be expelled from the tip. This is obtainable only from dual-valve wellpoints. Single-valve wellpoints allow some of the jet water to seep or waste out of the wellpoint screen and eventually the jetting holes or jetting tip may become plugged. In the dual-valve type of wellpoint, the erosive action is continuous until external pressure is greater than that of the jetting water, which is extremely rare.

A jetting hose of 2-in. minimum dia and tested to withstand at least 150 psi is attached to the wellpoint swing at the top of the riser pipe. The whole wellpoint assembly, consisting of screen section, riser pipe of correct length and wellpoint swing, is raised to a vertical position adjacent to a header swing placed at the correct spacing on the header pipe. Maximum volume of water is applied through the jetting hose and the wellpoint is self-jetted to the predetermined depth.

The direct and positive erosive action of the jetting water displaces the soil which is either carried to the surface or, in the case of the heavier grains, held in suspension to settle as a filter around the screen section when the jet water is shut off. The hole created allows the wellpoint to descend to the proper depth. Then the jetting hose is removed and the wellpoint riser connected to the header pipe.

• **Jetting chains are** used sometimes due to the resilience or toughness of the soil to ream the hole to a larger diameter than would be formed by normal jetting.

• **A holepuncher** is used in cases where wellpoints are installed to great depths, in unusual soils or in rocky soils. A holepuncher consists basically of a heavy casing weighing up to 2 tons and equipped with a removable head. A crane is used for maneuvering and imparting a vertical chopping motion. Rotation of the hardened cutting teeth on the bottom of the casing is imparted by a manually operated bull-arm at right angles to the casing. The bull-arm remains the same distance above ground level by sliding up welded tracks on the casing. Soil displacement and a carrying medium are supplied by compressed air and water, both applied at the maximum pressure and volume available.

When the holepuncher has penetrated to the de-



MINNEAPOLIS-MOLINE MM MODERN MACHINERY

WHEELERS

COST LESS TO OWN . . . LESS TO OPERATE . . . and, they're HEAVY DUTY . . . ALL THE WAY!

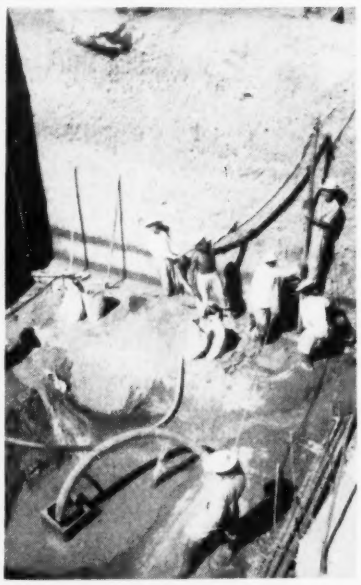
You get ALL the benefits of Modern Manufacture when you specify MM Wheelers. Standardized, heavy duty parts and modern assembly procedures cost you less to begin with. Quality control in parts and assembly offers maximum precision for longer service on the job. And, those same efficient production methods permit special MM design features that give *better* loading performance—*greater* loading capacity.

Every day, more and more careful buyers are getting the facts from MM distributors . . . *buying* MM Wheelers for lower *first* cost—lower *operating* costs.



TALK ABOUT CAPACITY! Here's an MM loader unit handling a log 45" thick, 18' long.

MINNEAPOLIS-MOLINE
MINNEAPOLIS 1, MINNESOTA



BRIDGE PIER excavation in El Salvador, Central America, continues after stabilization has made it possible to cut walls vertically. Natives are jetting for next round.

sired depth, the wellpoint is lowered inside the casing after removal of the head. The casing then is withdrawn, leaving the wellpoint in its operating position. The holepuncher is designed to penetrate soft and disintegrated rock.

• **System layout** is based primarily on soil characteristics. A relatively small excavation, yet with unusual soil, often presents greater dewatering difficulties and more urgent need for trained engineering analysis than a larger, deeper job in a well-graded medium sand. Where a contractor has had previous wellpoint experience, or has the ability to correctly interpret instructions and the soil characteristics are of normal sands, he often can make his own wellpoint layout.

He must keep in mind factors which are usually applicable, such as a safe lift from subgrade to centerline of pump of 15 ft and placing the tops of wellpoints screens at least 2 ft below subgrade. For projects with large areas, depth or unusual soil characteristics, the engineering division of a wellpoint company should be consulted.

Analyses and recommendations are made at no cost to the contractor or engineer, and only after careful consideration of the various factors involved, which include, but are not limited to:

(Continued on page 81)

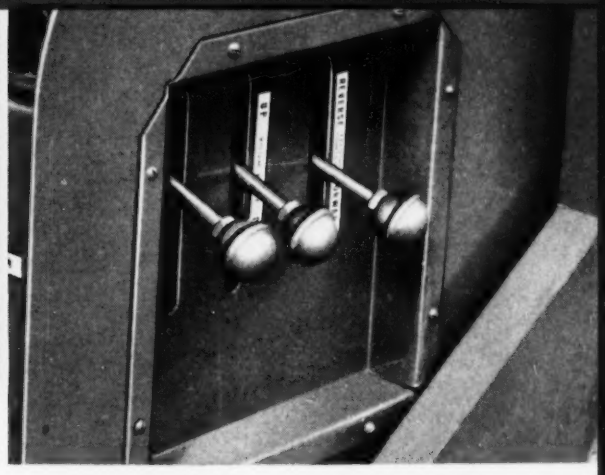
SUNDSTRAND

FLUID MOTOR • MULTIPLE SECTION SERIES VALVES

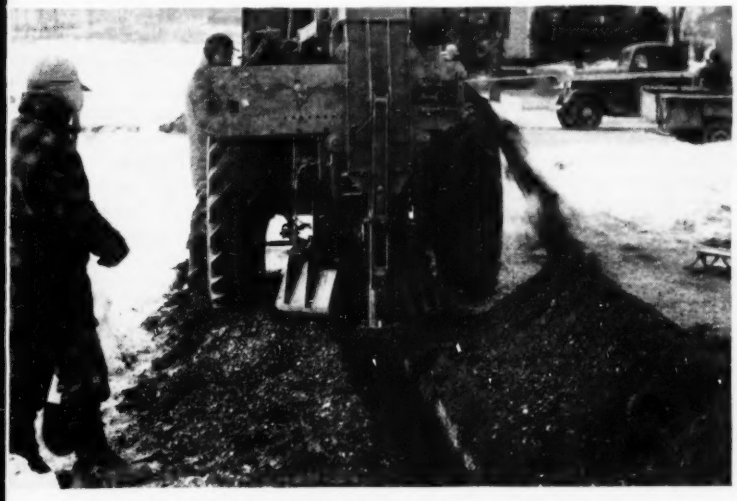
simplify operation, improve control of Barber-Greene "Runabout"



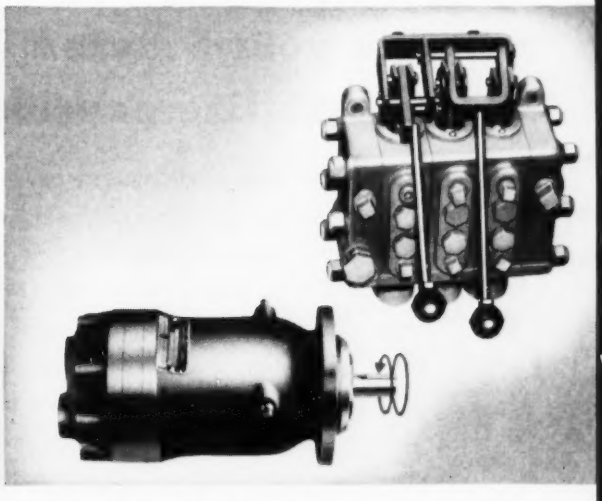
DIGS TRENCHES CLEAN, FAST!—for services, power cables, and telephone lines. Digging speed, direction of machine travel and "up" or "down" position of boom or backfilling blade attachment are precisely controlled with "flick of a finger" by Sundstrand's Multiple Section Series Valve.



CENTRALIZED HYDRAULIC CONTROLS—conveniently located for seat or side operation. While machine is operating, ditching speeds are easily and instantly changed to meet variable digging conditions. Result—ditcher works at maximum efficiency at all times.



FROZEN GROUND NO PROBLEM HERE!—Simplicity and rugged construction of the Sundstrand Hydraulic Motor make it fully dependable for all digging jobs. Operator simply opens the Sundstrand Valve to reduce crowding speed by infinite degrees (16 f.p.m. max. to zero) to meet difficult soil and weather conditions.



ONE COMPACT VALVE—Three sections are connected in series so various operations may be performed simultaneously under full or varying load. Sundstrand Fluid Motor is the *heart* of the "Hydra-Crowd" Transmission, providing infinite speed range and a smooth-operating, simply designed power source.



NEW DATA BULLETINS NOW AVAILABLE . . .

Write for free bulletins on Sundstrand's Multiple Section Series Valve and Fluid Motor for complete operation descriptions, specifications, and applications. The valve bulletin is Form 3104; the Fluid Motor bulletin is 113-1.

SUNDSTRAND

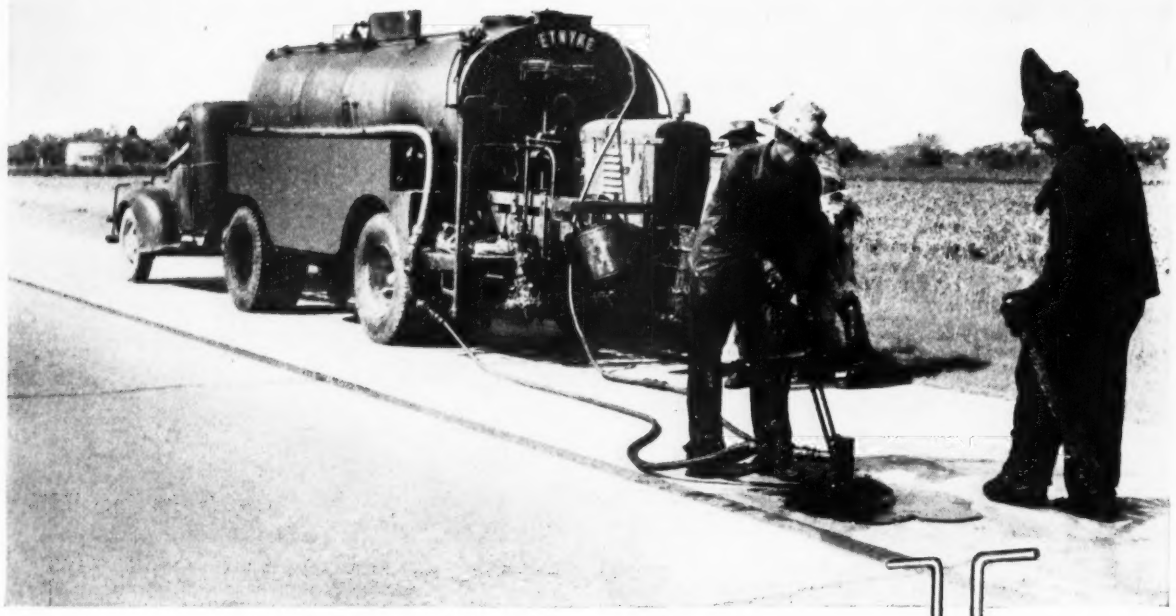
SUNDSTRAND HYDRAULICS

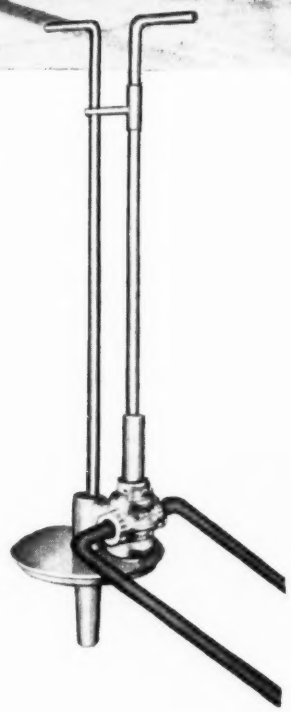
SUNDSTRAND MACHINE TOOL CO.

HYDRAULIC DIVISION, ROCKFORD, ILL.

AIRCRAFT AND INDUSTRIAL HYDRAULIC TRANSMISSIONS, PUMPS, MOTORS AND VALVES • OIL BURNER PUMPS • AIR SANDERS
LATHES • MILLING, BROACHING AND SPECIAL MACHINES • BROACHING TOOLS • MAGNETIC CHUCKS

NEW ETNYRE UNDERSEAL GUN





Use your Etnyre "Black-Topper" to stabilize pavement sub-grade

Sunken sub-base under concrete pavement is getting the full treatment these days, when an Etnyre "Black Topper" is used to pump bituminous material through a new Underseal Gun. The gun is designed specifically for this work. Long handles keep the operator in a comfortable position. A shield at the base protects the operator from squirting of hot material. The tapered gun fits snugly into the pavement opening. And the packed valve eases operation as it protects against leakage. Material flows constantly through both hoses, even when pumping under the pavement. As a result the material never "sets-up" in either hose. Get complete details and prices—ask about Underseal Gun No. US-1A.

E. D. Etnyre & Co., Oregon, Illinois

SEE YOUR ETNYRE DEALER

ETNYRE
"Black-Topper"
BITUMINOUS DISTRIBUTORS





SOIL STABILIZATION of saturated muck, so that earthmoving equipment could be brought in, was done with wellpoints on the site of a railroad yard at Norfolk. Draglines perch on ground formerly barely supporting the weight of a man.

1. Soil characteristics
2. Geological and topographical peculiarities
3. Area hydrology
4. Water depth and total dynamic head
5. Size and depth of area
6. Power facilities
7. Excavation and construction procedure and schedule
8. Site accessibility
9. Working and labor conditions
10. Time and financial limitations

• **Recommendations** based on all conditioning factors will include the following: Type, quantity and cost of equipment with sufficient pumping capacity and power; number, spacing and length of wellpoints; elevations and locations of pumps, header lines and discharge lines; special installation methods and equipment; estimated installation and operation labor and supplies; detailed procedure coordinated with contractor's procedure and schedule.

On certain projects recommendations guarantee to dewater designated areas to predetermined elevations. In some instances, for financing purposes, fixed costs are guaranteed to cover installation, operation and removal. Larger projects usually run to millions of gallons pumped per day, over areas miles in extent, to depths ranging over 100 ft below original water level, and for periods up to several years.

Where contractors purchase equipment outright, engineering facilities are available to them, also.

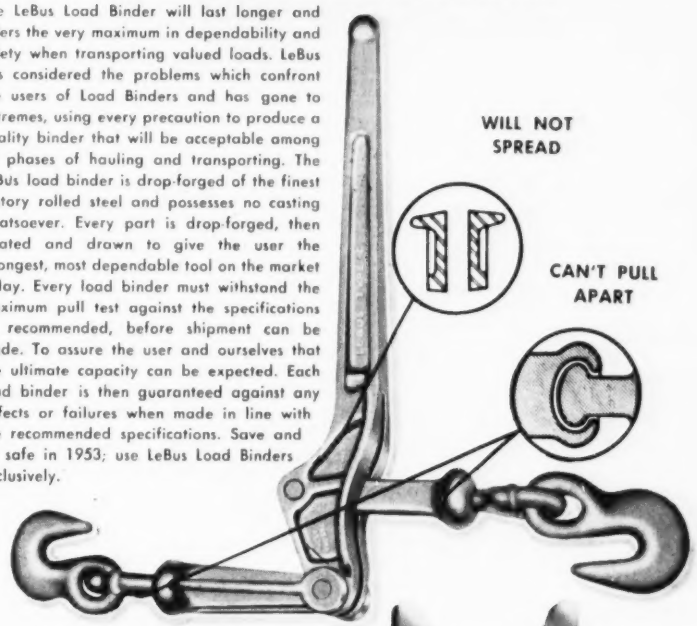
In jobs up to 30 ft in depth, one ring or stage of wellpoints, supplemented by a temporary stage,

(Continued on page 84)

MORE STAMINA

. . . LEBUS LOAD BINDERS

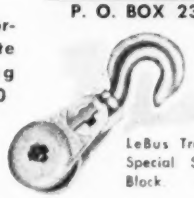
The LeBus Load Binder will last longer and offers the very maximum in dependability and safety when transporting valued loads. LeBus has considered the problems which confront the users of Load Binders and has gone to extremes, using every precaution to produce a quality binder that will be acceptable among all phases of hauling and transporting. The LeBus load binder is drop-forged of the finest factory rolled steel and possesses no casting whatsoever. Every part is drop-forged, then treated and drawn to give the user the strongest, most dependable tool on the market today. Every load binder must withstand the maximum pull test against the specifications as recommended, before shipment can be made. To assure the user and ourselves that the ultimate capacity can be expected. Each load binder is then guaranteed against any defects or failures when made in line with the recommended specifications. Save and be safe in 1953; use LeBus Load Binders exclusively.



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For more information write for catalog page #100

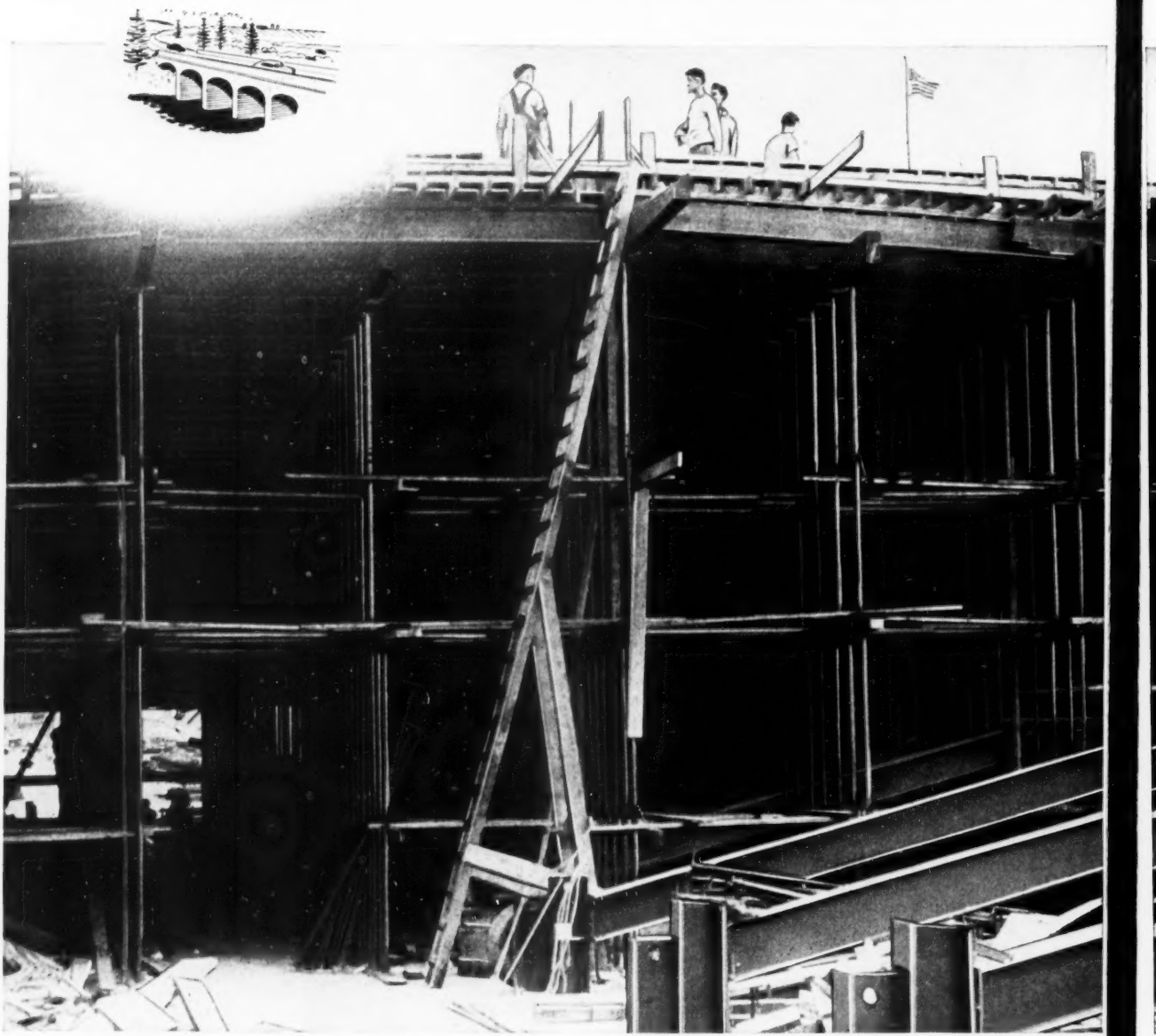


LeBus Truckers Special Snatch Block



LeBus Tail Chains.

SAVES ⅓ ON BRIDGE



Acrow—The World's Largest Selling Shore

Over 1,000,000 Acrow Shores now in use without an accident

Acrows were set in place on a downward grade—double-decked to a total height ranging from 16 ft. to 26 ft. with a 3" x 8" plank between shores. Five tons of concrete were deposited on the deck supported by the Acrows at each dumping.

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FALSE WORK by using...

ACROW ADJUSTABLE STEEL SHORES...



DeMatteo Construction Company of Quincy, Mass., used Acrow Shores as underpinning on bridge false work when building the Sullivan Square Overpass, Boston. Over ⅓ was saved in lumber and labor costs during erection.

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Modern construction methods call for modern equipment. That's why all steel ACROWS are now in use on hundreds of construction jobs across the country. Safe, sure ACROWS can be set in seconds, stripped in seconds. They're adjustable, self-contained units easily handled by one man. And they can be used over and over on all types of jobs.



ONLY ACROWS ARE SELF-CLEANING—a patented stud on the collar nut automatically clears thread of concrete and dirt when adjustment handle is turned, assuring quick, easy stripping.

Write for complete information.

Dept. CM6

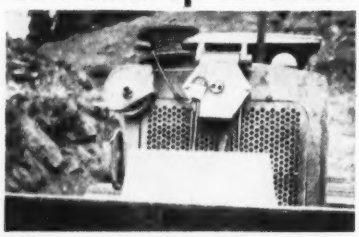
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NOW

Tuffy®

Can Save Up To 300%



Goodbye To Waste of Good Dozer Rope!

Tuffy Dozer Rope is specially constructed with the extra stamina needed to stand up under the rough dozer treatment. But Tuffy engineers went even further to cut your costs! They devised a special reel to carry 150′ of Tuffy Dozer Rope on the tractor. When 10′ or so of rope is crushed or cut on the drum, you just feed enough from the reel to replace the damaged part! The cut can be made and the machine back in use in 15 to 20 minutes—less than half the time normally needed! Figuring roughly, there are two Dozer Ropes to a reel. This gives you an approximate ratio of 6 to 2 . . . about 300% increased service! Mount a reel of Tuffy Dozer Rope just back of the wedge socket on your Dozer and see how much longer service you get! ½" rope, furnished in 150′ reels.

Mail Coupon for FREE Folder on Tuffy Dozer Rope



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Specialists in Wire Rope and Braided Wire Fabric
2270 Manchester Ave., Kansas City 3, Mo.

Please send me the FREE illustrated folder on Tuffy Dozer Rope.

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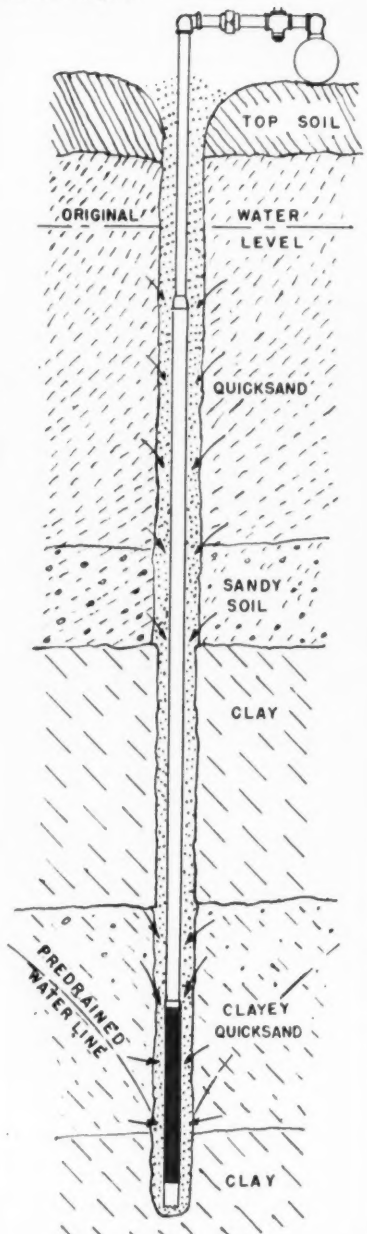
*Address*_____

*City*_____ *Zone*___ *State*_____

C9

WELLPOINTS . . .

Cont. from p. 81



CROSS-SECTION of wellpoint jetted through water-bearing sand and clay. Water line is depressed around screen.

usually is sufficient. Deeper jobs need multiple stages in steps of from 12 to 17 ft.

Unless the project is relatively normal in soil conditions and the contractor or engineer has had some wellpoint experience, it is sound practice to have a demonstrator from the wellpoint company, usually a graduate engineer, on the job site to supervise the

(Continued on page 88)

Tuffy®

Saves Nearly 50% on Scraper Rope Costs!



"Outlasts (Other Rope) Almost 2 to 1"

Says Owner of a Middlewestern Construction Company

(Name on Request)

From his records of yardage and service life, this Nebraska construction company owner learned that he could save nearly 50% on scraper rope costs by switching to Tuffy! And there's a good reason why: Tuffy is specially made to stand up under the stresses and strains of wheeled scrapers. It's flexible to withstand more sharp bending and to wind snugly and smoothly on the drums. It is designed to resist drum crushing caused by cross-overs. And Tuffy is easy to order — just specify length, diameter and "Tuffy."

Get This FREE Folder on Tuffy Scraper Rope



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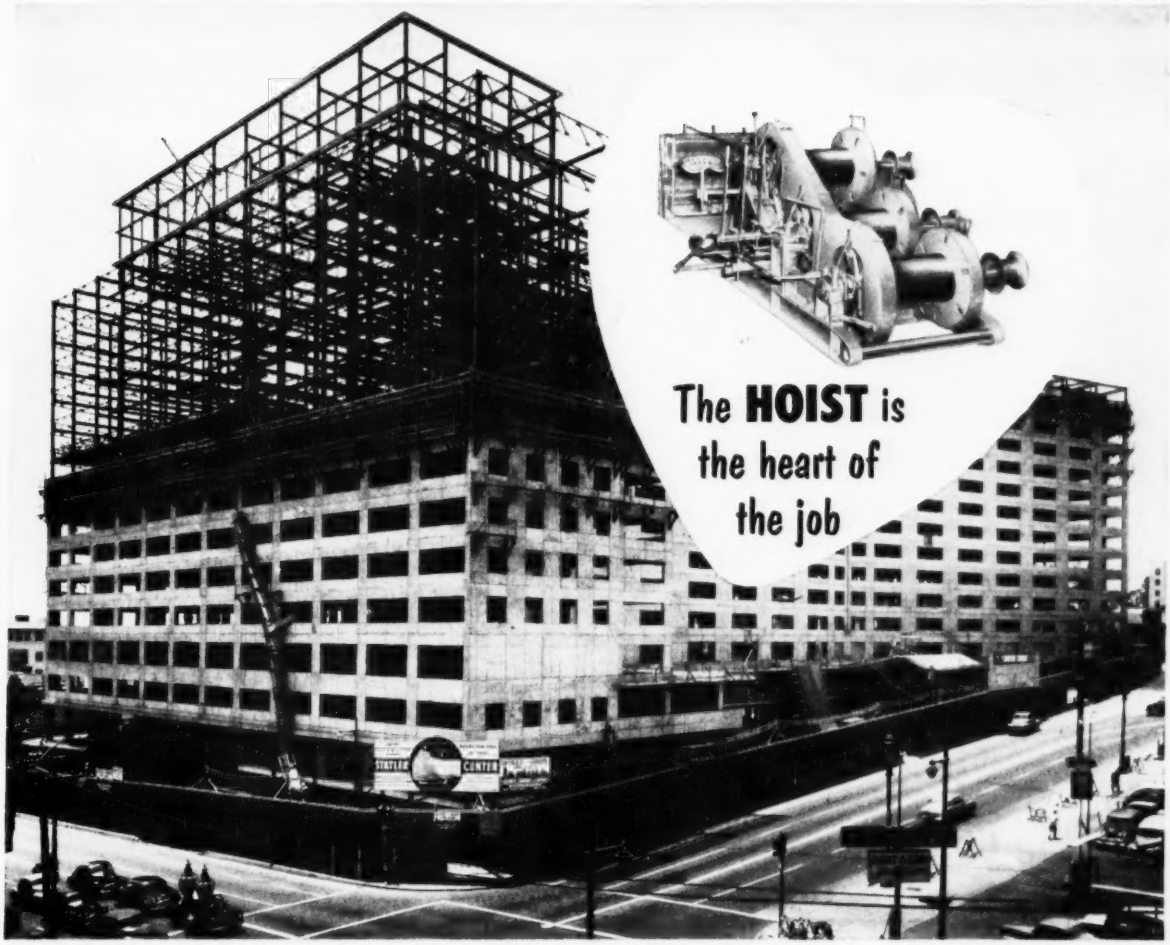
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*By*_____ *Title*_____

*Address*_____

*City*_____ *Zone*___ *State*_____

C10



No matter how much you spend on bigger, faster trucks, motorized concrete buggies, or any other equipment, the steady speed of your crews will always depend on the *hoist*.

That's why experienced contractors take no chances, in buying hoists. On the great new Statler Center in Los Angeles, pictured above, the entire job of lifting concrete was handled by one hoist — an American Model 100 3-drum electric, shown in inset. Its smooth, cool-running outside band clutches, rock-solid bed and side frames, and perfectly aligned shafts kept it running night and day, week after week, month after month.

Two other Americans, handling miscellaneous materials, showed the same unfailing dependability on the Statler project. If you, too, want absolute safety *at the heart of the job*, choose exactly the size and type of hoist you need from the broad American line. Your American Hoist distributor can give you the best kind of service and advice.

3101

Modernize...economize...with

American Hoist

AMERICAN HOIST & DERRICK CO. • ST. PAUL 1, MINN.

For safety...insist on

American

CROSBY

Load-Rated!

WIRE ROPE BLOCKS

Safe working capacity embossed on side plate. Every block packaged.

22,000 hrs. of service without repair!

KENNETH FORKER
CRANE SERVICE - MARL - BULLDOZING
ALBION, INDIANA
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November 21, 1952

The Pierce Governor Company, Inc.
Anderson, Indiana

Attention: Mr. Thos. L. Marks

Dear Sir:

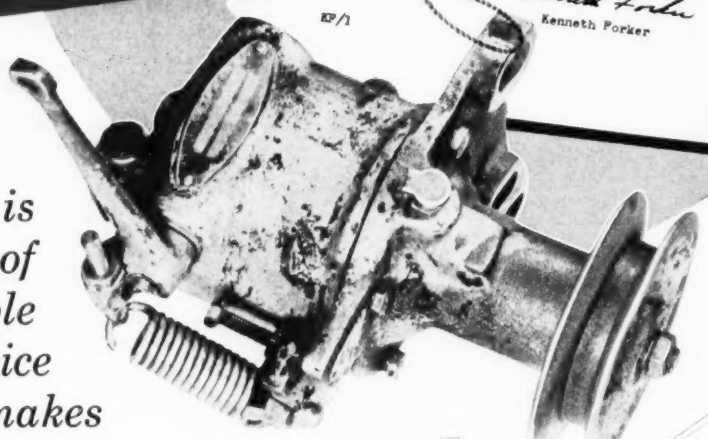
I have a Pierce governor on an industrial power unit on an Osgood crane. I bought the crane in January 1946, and it has been in continual use since that time. It has an hour meter which registers 22,000 hours. Figuring 40 miles per hour this governor would have 880,000 miles giving complete service without repairs.

I believe this is very good service and certainly speaks a good word for the Pierce governors.

Just wanted you to know how satisfied I am with your governor.

Very truly yours,
Kenneth Forker

KF/1



...this is the kind of dependable service that makes

PIERCE GOVERNORS preferred!

Mr. Forker's Pierce Governor worked the equivalent of 12-hour days for six straight years without the first sign of trouble or wear.

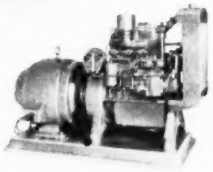
When you buy Pierce-governed power equipment you are assured of unsurpassed governor performance and trouble-free service . . . usually for the life of your engine. That's why Pierce is preferred.

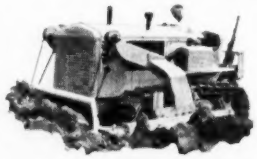
There's a Pierce Centrifugal Governor for gas, gasoline and diesel engines in every industrial use. Write for specific information.

THE PIERCE GOVERNOR CO., INC.
1622 Ohio Avenue, Anderson, Indiana

PIERCE — THE MARK OF QUALITY

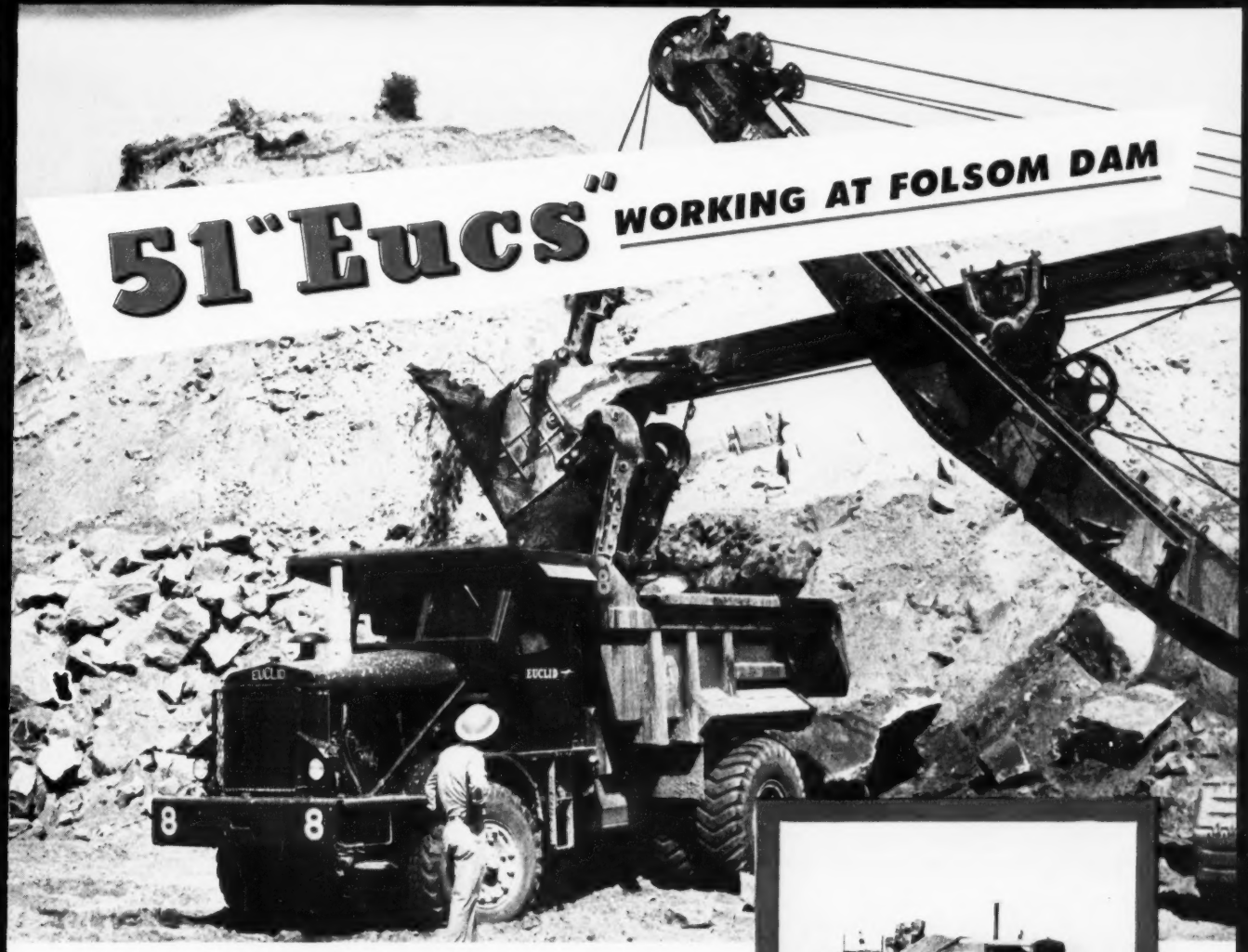






IF your present governor is giving you trouble, tell us about it. Chances are we can supply you with a replacement that will solve your problem fully.

51 "Eucs" WORKING AT FOLSOM DAM







Fifteen and a half million cu. yds. of earth and rock are being moved for construction of Folsom Dam on the American River near Sacramento, Cal. This big irrigation, flood control and power project is being built under the supervision of the Corps of Engineers and the U. S. Bureau of Reclamation.

As on hundreds of other tough jobs, Euclid equipment is helping to keep the earth moving work on schedule. Contractors for the dam, Merritt-Chapman & Scott Corporation and Savin Construction Company are using 4 Euclid Twin-Power Scrapers, 15 Rear-Dump "Eucs" of 22 ton capacity, 16 Bottom-Dumps carrying heaped loads of 30 cu. yds., and a Euclid Loader. Guy F. Atkinson Company is using a total of 15 "Eucs" for power house excavation and building an access road.

The high production and cost cutting features of Euclid equipment can pay off for you just as they are for the contractors at Folsom Dam. Ask your Euclid Distributor for facts and figures . . . he has a new catalog on the complete line of Euclid equipment for you . . . just ask for Form 325.

The EUCLID ROAD MACHINERY Co., CLEVELAND 17, OHIO

CABLE ADDRESS: YUKLID CODE: BENTLEY

EUCLID THE PIONEER

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

Booklet with a revolutionary message...NEW!



Send for your FREE copy...NOW!

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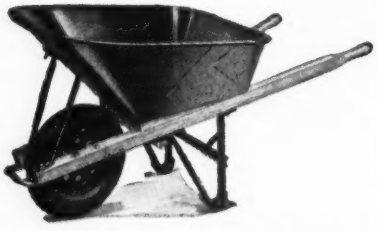
..... Perfect Balance!



Sterling Wheelbarrows move quickly and easily because of their perfectly balanced construction. Actually 80% of the load is on the wheel . . . only 20% on the operator. That certainly lightens the load for fast, easy wheeling.

Wood handles are longer, formed to fit the operator's hands. Steel channel legs and reinforcements are designed for maximum leg clearance. Write for new Wheelbarrow Catalog No. 63A.





STERLING D3½W
(above) Sturdy wood-handle barrow for dry materials. 3½ cu. ft. capacity.

STERLING C5W
(right) Ideal for concrete, mortar, etc. 5 cu. ft. capacity.

DEALERS NEEDED—
WRITE FOR DETAILS.

STERLING WHEELBARROW CO., Milwaukee 14, Wis.

Look for this Mark of STERLING Quality

Sterling WHEELBARROWS



HEAD COMES OFF holepuncher after casing has been jetted and reamed through fill material in New York City. After wellpoint is placed inside, casing is withdrawn.

initial installation. The cost of his time is more than compensated for by his knowledge of construction methods and procedures; of placing and operating installation equipment; plus a fund of tricks of the trade for rapid and economical installation.

If redesign of the wellpoint layout is necessary due to unforeseen changes in construction procedure, scheduling, redesign of project or changing soil conditions, he can engineer the revisions.

Wellpoint systems are used extensively in fields other than dewatering. They have been used successfully in both temporary and permanent installations in soil stabilization of banks, levees, dams and slopes to prevent slides.

• **Soil stabilization** actually is an increase in strength of the soil due to reduction in its water content. This reduction in water content may in some cases be accompanied by reduction in over-all volume of the soil, even though no particles are pumped out or removed.

Examples of this type of stabilization are:

A. The Summit Bridge over the Chesapeake and Delaware Canal, for the U. S. Engineer Corps. Reduction of water content in the soil enabled the banks to be maintained at the original slope after slides had occurred, threatening the bridge abutment.

B. At Hartford, Conn., during the construction of the Phoenix Insurance Co., building, the soil was a mixture of very fine sand, silt and thin clay layers, that would barely support the weight of a man. Test piles gave 1 to 2 blows per ft. Soil stabilization allowed the majority of the soil to be removed by scrapers, and the banks maintained on a slope of 1 on 1, instead of the designed 1 on 4.

C. A hydraulic-placed clay fill was stabilized by wellpoints and sand drains at Norfolk, Va. for the Norfolk and Western Railroad. Stabilization allowed the material to be excavated by draglines, as well as to support the weight of new railroad tracks.

• **Pressure-relief wellpoints** are used permanently in dams, levees, drydocks, and structures, as well as temporarily during construction. Pressure-relief wellpoints are installed with the screen section in pervious soil layers below construction limits. This reduces the hydraulic uplift pressure, either on the structure or on the subgrade soil. Pressure relief wellpoints are quite common. Three examples being:

A. Permanent system in the Dry Dock at Hooker's Pt. Shipyard, Tampa, Fla.

B. The construction of the north abutment for the new San Marcos suspension bridge in El Salvador, Central America.

C. Permanent installation at Ley Creek disposal plant, Syracuse, N. Y. to reduce the hydraulic uplift pressure and prevent floating when the settling tanks are pumped out for cleaning purposes.

• **Water supply wellpoint systems** have been increasing steadily as a low-cost method for clean, pure, filtered water for homes, farms, swimming pools, institutions, industries and entire municipalities. They are of special value in the tropical areas of South America, due to ease of transportation and installation in practically inaccessible regions, plus low maintenance and operating costs.

• **Corrosion and encrustation problems** have been overcome by the use of plastic wellpoints and piping in corrosive soils. Various other methods such as dipped or sprayed coatings or special metals, such as wrought iron, brass, monel, are used for special conditions.

(Advertisement)



SCARS AND GOUGES from ordinary steel vibrator heads result in blemished concrete and costly repairs before forms can be reused.



RUBBER TIPPED VIBRATORS do not mar forms any more than ordinary pencil eraser. Result is smoother finish and much longer form life.

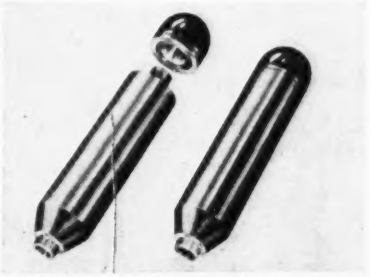
Extend Life of Costly Forms Indefinitely by Using Rubber Tipped Vibrators

Viber's replaceable rubber tips will not gouge plywood or other expensive form materials (which can cut cleanup time up to 100%).

To cut costs progressive contractors plan their jobs for repeated use of costly plywood or other formwork. Accidental contact by ordinary steel vibrator heads can damage these forms so they must be patched or even scrapped. A damaged form also makes an imperfect finished surface, requiring expensive hand rubbing if appearance is at all important to the job.

Viber's replaceable rubber tip prevents such damage and extends indefinitely the life of these expensive forms. Made of high grade rubber tougher than the best truck tires, it will not damage any of the common form materials, including plaster of paris inserts for architectural concrete. This means important savings for the user through longer form life and less cleanup time.

These replaceable rubber tips are an exclusive patented development of VIBER COMPANY, another example of the progressive design and planning that keep VIBER a leader in the field of vibration. For information on VIBER'S complete line of internal and external vibrators, write your authorized dealer or VIBER COMPANY, 726 So. Flower Street, Burbank, California. **Dept. 68**

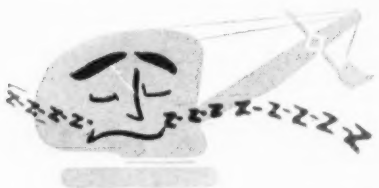


EASY REPLACEABILITY by screwing tip on end of sealed housing where most wear occurs extends housing life two to four times. Tip is made of tough live rubber vulcanized on machined steel base.

There are TWO WAYS

1 THE EASY WAY . . . .

. . . is to design a few basic machines, and then build up a line of additional models by adding extra counterweight and by speeding up the engine to try to meet two or three size requirements. The only real difference in these models lies in the counterweight and the dipper capacity.



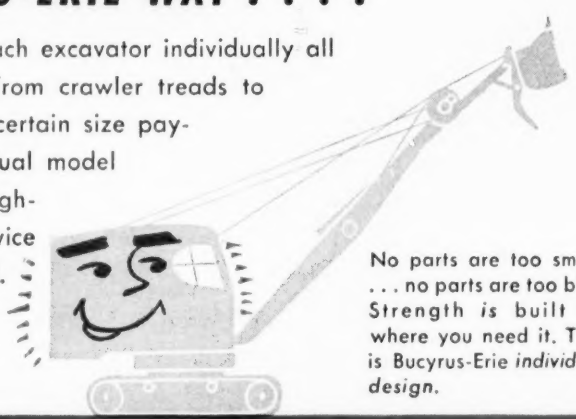
Of course, some of these machines will carry dippers too small. They won't produce the output they should — power is wasted.



Other machines with dippers too large and counterweight too heavy will sweat and strain from overloads and overwork. They will run up high repair bills and wear out in a hurry. Strength is not built in where you need it.

2 THE BUCYRUS-ERIE WAY . . . .

. . . is to design each excavator individually all the way through from crawler treads to boom point for a certain size payload. Each individual model is engineered throughout to meet the service and loads required.



No parts are too small . . . no parts are too big. Strength *is* built in where you need it. This is Bucyrus-Erie *individual design.*

8E53C

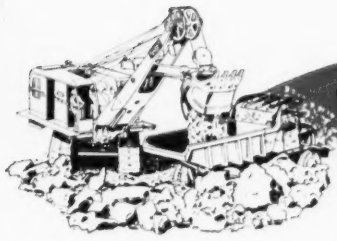
BUCYRUS ERIE

Individual design means bigger loads on every bite, faster digging cycles, lower maintenance costs, longer machine life. All these add up to higher overall output, lower overall costs. Compare *individually designed* Bucyrus-Eries with excavators in any other line before you buy. Ask your Bucyrus-Erie distributor to give you complete details on how individual design means bigger output for you.

SOUTH MILWAUKEE, WISCONSIN

to build a line of excavators





See Your Bucyrus-Erie Distributor

SHOVELS DRAGSHOVELS DRAGLINES CLAMSHELLS CRANES



Fewer Shifts for Faster Trips

Take a ride in any mechanical-drive off-highway truck. Watch the driver work all the way as he double-clutches, slows down, shifts and speeds up over and over again. He'll be using up to ten transmission speeds to make his run and it'll be tough going all the way.

Now take that same trip in a truck that has an Allison TORQMATIC DRIVE. The driver's left foot will be idle because there's no clutch pedal to push. Notice how he just flicks a lever to shift *without slowing down*. And notice that with the flexibility of the torque converter he needs only three forward speeds to adequately handle all loads and grades. He'll be making fewer shifts and be back for another load a lot faster. Faster trips mean more pay loads per day.

Matched units built by one manufacturer, Allison TORQMATIC DRIVES cut operating and maintenance costs by absorbing harmful shock loads. Ask your equipment manufacturer, dealer or write:

ALLISON *Division of* GENERAL MOTORS
Box 894TT, Indianapolis 6, Indiana

ALLISON TORQMATIC DRIVES

Unbeatable Team for Maximum Operating Economy

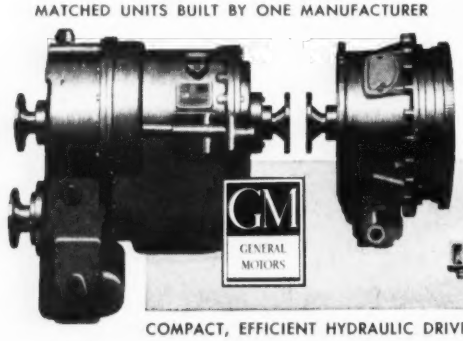
**Quick-shifts* at full throttle with fingertip hydraulic control.

**Holds* power to load at all times — no clutch pedal to push — no gearshift guess.

**Cuts* maintenance cost by absorbing shock — eliminates engine lugging — prolongs equipment life.

**Only* torque converter-transmission team designed to work together as a unit and built by one manufacturer.

MATCHED UNITS BUILT BY ONE MANUFACTURER

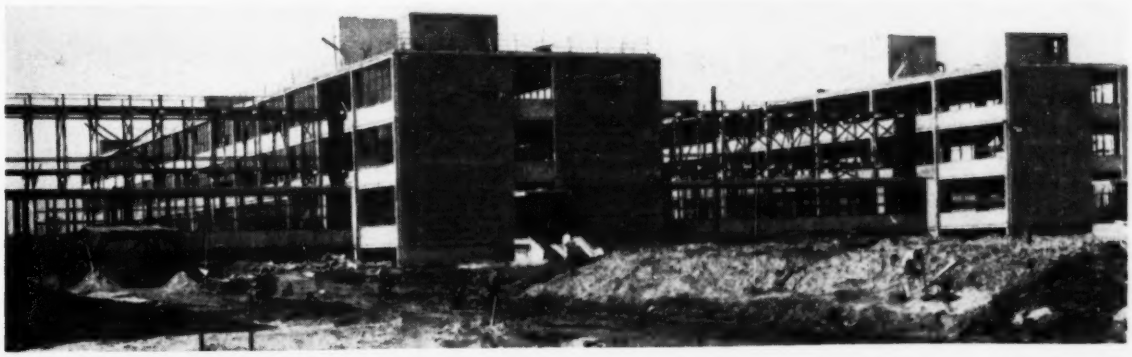


Allison TORQMATIC DRIVES



COMPACT, EFFICIENT HYDRAULIC DRIVES FOR CRANES * TRUCKS * TRACTORS * SHOVELS * SCRAPERS * DRILLING RIGS

This Contractor Runs Construction Costs Down . . .

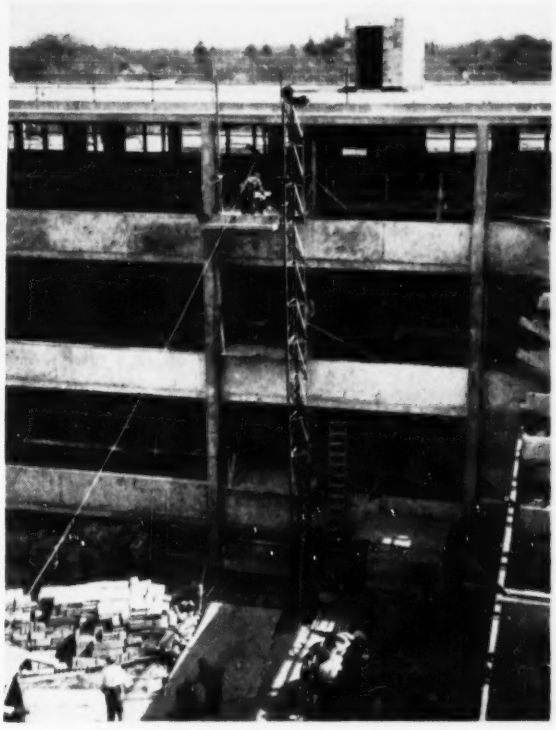


CONSTRUCTED PRIMARILY of scrap lumber, these two 2-level ramps of 100 ft each connected the wings of the buildings. The hoist was located at the extreme left.

By Building Ramps and . . .



TRANSIT-MIX TRUCKS backed to within 50 ft of a centrally located American hoist to load the 13 cu yd Whiteman power buggies. The buggies were handling about 11 cu yd of material.



2,500-LB CAPACITY HOIST carried the buggies to the proper floor level where an operator was waiting to drive unit to proper location. Two operators were stationed on ground.

. . . Purchasing Buggies

By RALPH H. LEWIS, Associate Editor

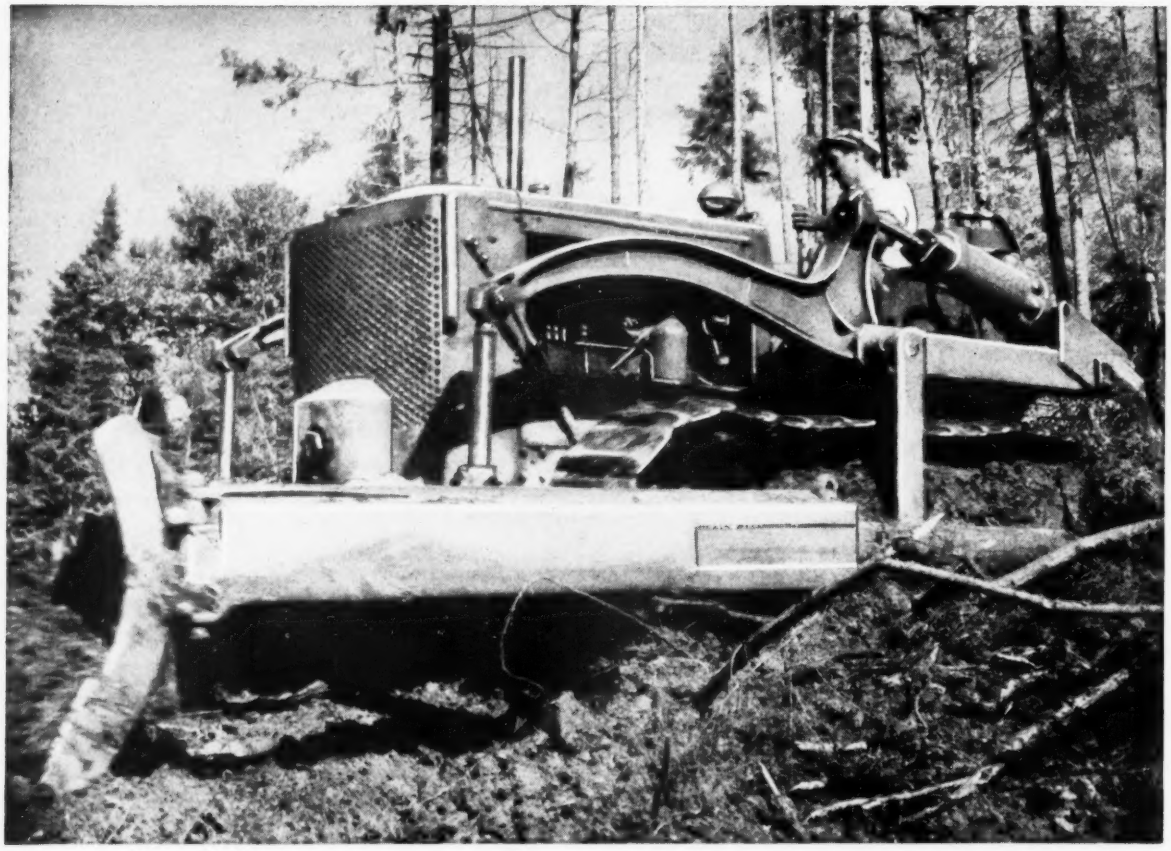
SOME MATERIALS HANDLING INGENUITY on the part of Enea "Terry" Terenziani, project superintendent for Tandy and Allen, contractors of Hillsdale, N. J., who are erecting a technical school, consisting of 5 buildings and a boiler house, for the U. S. Army Signal Corps at Ft. Monmouth, N. J., enabled the firm to make up some lost days caused by inclement weather and at the same time cut down construction costs.

The extremely wet weather the East has been having all year, made the construction site a sea of mud. Because the buildings under erection were of the wing type, the area between the structures was practically impassable to trucks and even on foot to the workers.

All told, the buildings required 25,000 cu yd of concrete, all transit mix, supplied by a local plant. The structures were erected by continuous pour with two cranes handling buckets loaded by the transit trucks.

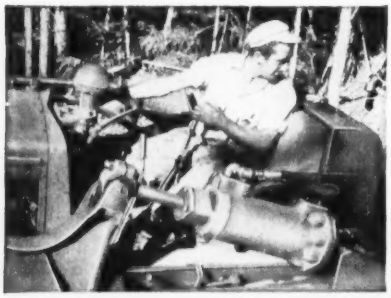
The big job facing the project superintendent especially after the rains set in, was moving material from building to building to keep the job rolling. Ready-mix concrete was the major concern, so the engineer recommended to general superintendent Grover Adams the purchase of six Whiteman power buggies, each with rated capacity of 13 cu yd. Once this purchase was approved, an American Hoist and Derrick with 2,500-lb capacity was erected in a central location, easily accessible from the various wings. Then, using mostly scrap lumber, the engineer con-

(Continued on page 95)





BESIDES CUTTING OUT ROADS, Riendeau uses his TD 14 to push his truck and a 15-ton load through quagmire road sections.



RIENDEAU HANDLES BULLDOZER HIMSELF. He says: "I've had first-hand experience with the terrific performance these highest quality Cities Service Products deliver."

New Hampshire Logger Cuts Truck Roads Through Forest!

Oscar Riendeau of Berlin, N. H., has been hauling logs for about 15 years. To get his lumber out of densely overgrown New England forests, Riendeau has to cut his own truck roads. He carves out his twisting, turning truck roads with an International TD 14 Diesel . . . powered by Cities Service #2 Diesel Fuel! . . . lubricated with Cities Service Lubricants!

Says Riendeau: "I use Cities Service Products throughout my operation . . . diesel fuels, lubricants, gasolene, and even tires. These high quality, dependable products have kept my equipment at work full time under really rugged conditions. I heartily recommend them for any earth moving or trucking operation."

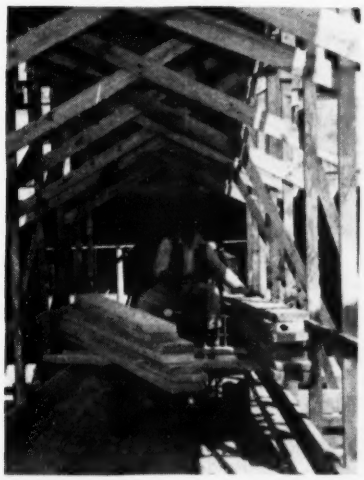
Why not try Cities Service Fuels and Lubricants in your operation?

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

RAMPS AND BUGGIES . . .

Continued from page 93



SOME OF THE BUGGIES were equipped with flat-beds and were used to spot material ahead of the trade workers.

structed a couple of two-level 100-ft runs or ramps between the buildings. The hoist was placed in such a spot that 6 normal hoist moves were eliminated.

Once this equipment was in place weather proved to be no serious obstacle. The transit-mix trucks moved in, loaded into the buggies on the ground—the buggies were run on the hoist and lifted to the proper level, and the load was quickly delivered to the proper spot. Two operators were stationed on the ground running each buggy, to and from mix truck, while the regular operator waited on the proper floor for his loaded buggy.

The buggies not only were useful in hauling the ready-mix, but also some of them equipped with flat-beds hauled millwork, gypsum boards, asbestos board, glass and frames, ceramic finishing tile and steel partitions.

The units supplied 45 bricklayers with mortar and block, 12 concrete masons with floor topping and 25 carpenters with materials.

Just to make sure the buggies kept busy, Terenziani kept them occupied on rainy days doing nothing but hauling waste.

Another piece of equipment Tandy and Allen have used on this same project for unusual applications, is an International TD-18 tractor equipped with Carco winch and 20-ft Carco tractor crane. They used it to unload steel from trucks, carried it to sleds at storage locations, and finally pulled the steel on the sleds to the job itself.

(More photos on next page)



Specify a

HEIL BODY AND HOIST

ON YOUR NEXT TRUCK

THE bigger the pay load, the better the profit . . . and when you specify Heil Bodies and Hoists, your truck will haul *more* pay load, less "dead load"! Lightweight design with great structural strength is the secret. Reinforced steel subframe welded integrally with the body and Heil no-sag body construction keep you out of the shop, on the job . . . assure extra years of service.

Time saved means money, and a Heil fast-dumping, trouble-free hoist mechanism gets your truck started back for another pay load in a matter of seconds.

Call your Heil distributor for complete details about Heil Bodies and Hoists . . . then, when you buy your next truck, *specify Heil.*

THE HEIL CO.

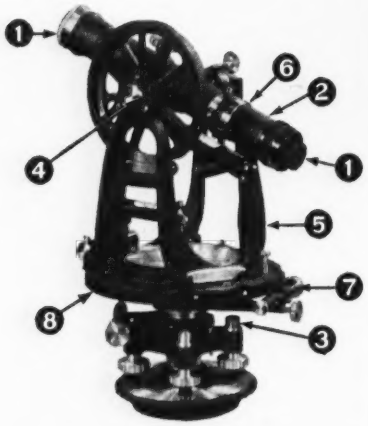
DEPT. 263, 3002 W. MONTANA ST., MILWAUKEE 1, WISCONSIN
Factories: Milwaukee, Wis. — Hillside, N. J.
Sales Offices: New York, Hillside, Washington, D. C., Atlanta, Cleveland, Milwaukee, Detroit, Chicago, Kansas City, Denver, Dallas, Los Angeles, Seattle; Rio de Janeiro, Brazil.

BH-11

THERE'S A HEIL STYLE FOR EVERY DUMPING NEED

Ask the man behind the "gun"...

How these 8 major design advances make White the top engineers' transit



1. Coated optics.
2. An optics system redesigned to achieve more effective aperature.
3. Covered leveling screws.
4. Improved telescope bearings.
5. New "U" design standard.
6. Glass Reticules.
7. Improved design and hand-lapped tangent screws.
8. Centrifugal castings.

TOMORROW as in the past, White Engineers' Transits will continue to offer the most up-to-date design and construction features. This results in greater accuracy, longer instrument life, easier use. To get all the details write for Bulletin 1053. DAVID WHITE CO., 343 W. Court St., Milwaukee 12, Wis.



DAVID WHITE COMPANY

We offer the most expert REPAIR SERVICE on all makes, all types of instruments.



RAMPS DESCENDED into the work areas inside the buildings. Here is a buggy delivering material into a corridor where it was finished by a Whiteman floating finishing machine.



TANDY AND ALLEN used this International TD-18 tractor, equipped with Carco winch and tractor crane to unload steel from trucks and also to sled it to erection site.

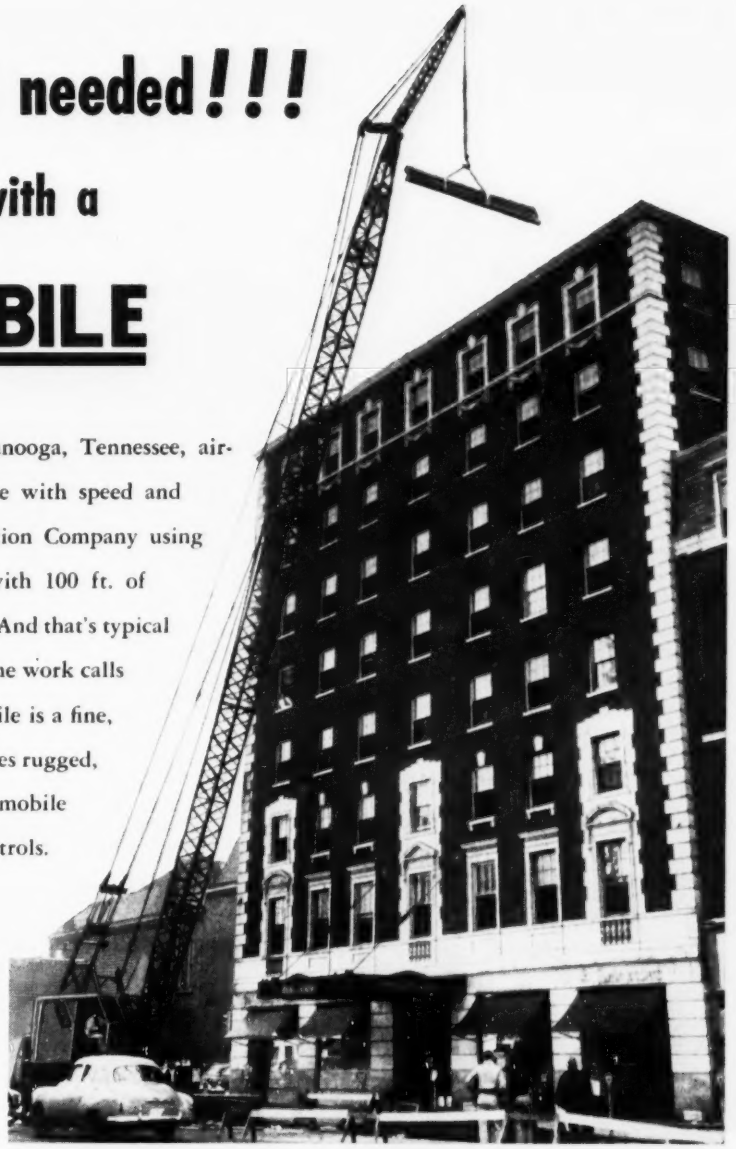


← CRANE - EQUIPPED TRACTOR lifted the steel from the trucks, carried it to storage locations and placed it on sleds. Later it pulled the steel to job location.

No SKY HOOKS needed!!!

—all lifts are easier with a

CRANEMOBILE



High atop the Read House in Chattanooga, Tennessee, air-conditioning equipment is set in place with speed and precision by the Industrial Steel Erection Company using a BAY CITY CraneMobile equipped with 100 ft. of boom and a 15 ft. jib to handle the job. And that's typical of CraneMobile performance whether the work calls for high lifts or heavy lifts. CraneMobile is a fine, powerful, efficient machine that combines rugged, heavy duty construction with flexible, mobile service and accurate boom and load controls. Both crane and carrier are built as a unit to give a nicely balanced crane with a low center of gravity. CraneMobile is available in capacities up to 25 tons with carriers to suit your job requirements.

219

Check these BAY CITY CraneMobile features:

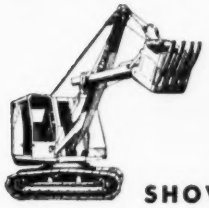
- Collapsible high gantry makes it possible to raise maximum recommended boom lengths from the horizontal without assistance.
- Accurate, fast independent boom hoist raises or lowers boom or boom and load only under power.
- Power load lowering device which can be quickly engaged or disengaged, will lower heavy loads smoothly and accurately.

For complete information about many other CraneMobile features, see your BAY CITY dealer today.

BAY CITY SHOVELS, INC., BAY CITY, MICHIGAN

Handy pocket-sized book of facts and features tells you all the reasons why "all lifts are easier with a CraneMobile". It's packed with interesting information, it's nicely illustrated and it's yours for the asking. Just write us.





BAY CITY



SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS



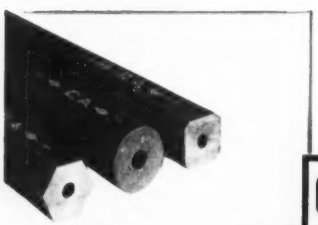
THE MINE FOREMAN

CRUCIBLE HOLLOW DRILL ROD

teamwork in specialties

In the mining industry the foreman is a mighty important guy. He is responsible for the successful performance of mining operations underground—for the supervision of mine workers and for keeping them properly equipped with the tools and supplies needed to get out their round. That's why in so many drilling operations you'll find that the mine foreman prefers Crucible Hollow Drill Rods.

He knows that with rising costs of labor and new equipment he must get the best service he can out of his rock drills . . . with minimum breakage and bit loss. And many a mine foreman has seen first hand that Crucible Hollow Drill Rods do just this . . . that they provide the lowest cost per foot per hole in hard rock drilling. For best drilling performance, use Crucible Hollow Drill Rods.



CRUCIBLE first name in special purpose steels

53 years of Fine steelmaking **HOLLOW DRILL RODS**

CRUCIBLE STEEL COMPANY OF AMERICA, GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA.

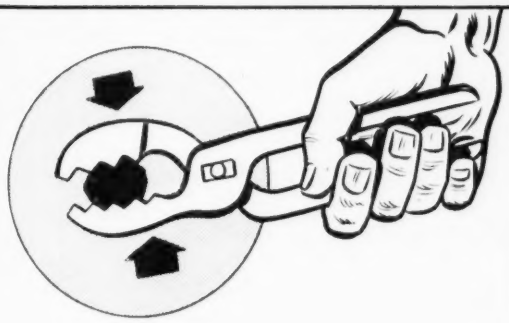
REX HIGH SPEED • TOOL • REZISTAL STAINLESS • ALLOY • MACHINERY • SPECIAL PURPOSE STEELS

Traylor TY Reduction Crusher Swallows Big Rock with less Choking





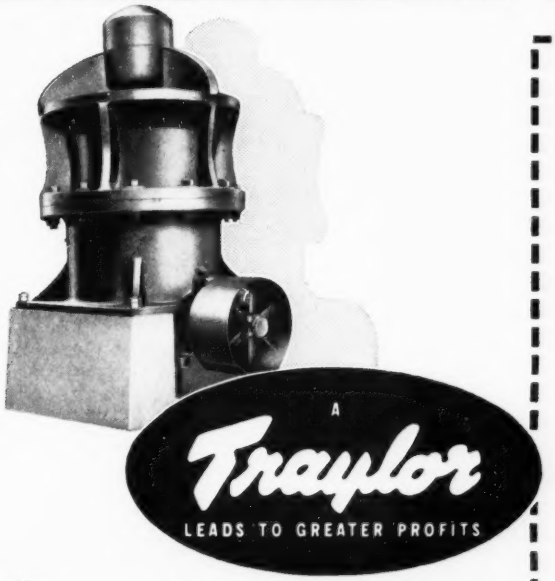
The extra large feed opening, plus Traylor's curved crushing surfaces will handle larger rocks than any other secondary crushers. This means a smaller percentage of oversize need be returned for a second pass thru the primary breaker.



Traylor's Curved Crushing Surfaces apply power as a direct crushing force . . . assure a more uniform cubical aggregate on less power per ton. This efficient use of power also reduces wear and replacement costs.



Curved Crushing Surfaces also reduce lifting and churning . . . choking and packing. Each zone in the crushing chamber has greater capacity than the preceding zone . . . aggregate has free fall through the all-around bottom discharge.



INVESTIGATE all the advantages of this compact and efficient secondary crusher. Free bulletin gives complete illustrations and specifications, including size and capacity range, of the Traylor TY Reduction Crusher. Send coupon for your copy today.

Please send Bulletin 7112 immediately

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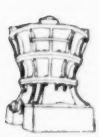
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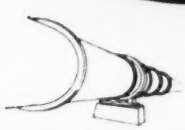
Company: _____

Address: _____ *State:* _____

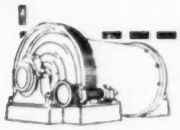
TRAYLOR ENGINEERING & MANUFACTURING CO.
577 MILL ST., ALLENTOWN, PA.

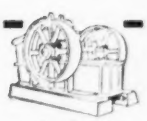
SALES OFFICES: New York • Chicago • San Francisco
Canadian Mfrs: Canadian Vickers, Ltd., Montreal, P.Q.

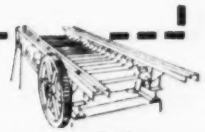

Primary Gyratory Crushers


Rotary Kilns

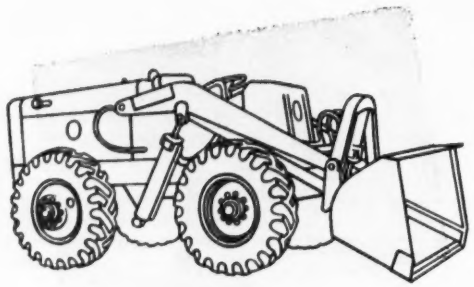

Secondary Gyratory Crushers


Ball Mills


Jaw Crushers


Apron Feeders

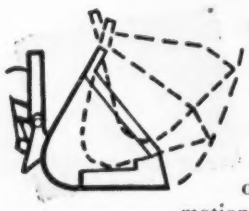
Better Features Mean



SIMPLICITY

"PAYLOADER" design is simple and accessible — proven by low maintenance records covering millions of hours of "PAYLOADER" service. A total of only three hydraulic rams are used for boom and bucket control, eliminating many parts and levers.

CROWDING ACTION



When the "PAYLOADER" booms rise, the bucket is given a combination forward and upward motion in a powerful crowding action independent of the machine's forward motion. Full bucket loads are quickly and easily obtained.

TIP-BACK BUCKET



Continued lifting motion of the booms automatically tips the bucket back to a level position so that heaping loads can be carried without spilling and with good balance and operator visibility.

Plus THESE SPECIAL FEATURES

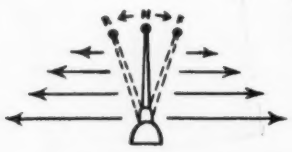
(on specific models)

- power-steering
- four-wheel-drive
- rear-wheel-drive
- front-wheel-drive
- gas or diesel
- extra-high lift

Extra attachments:

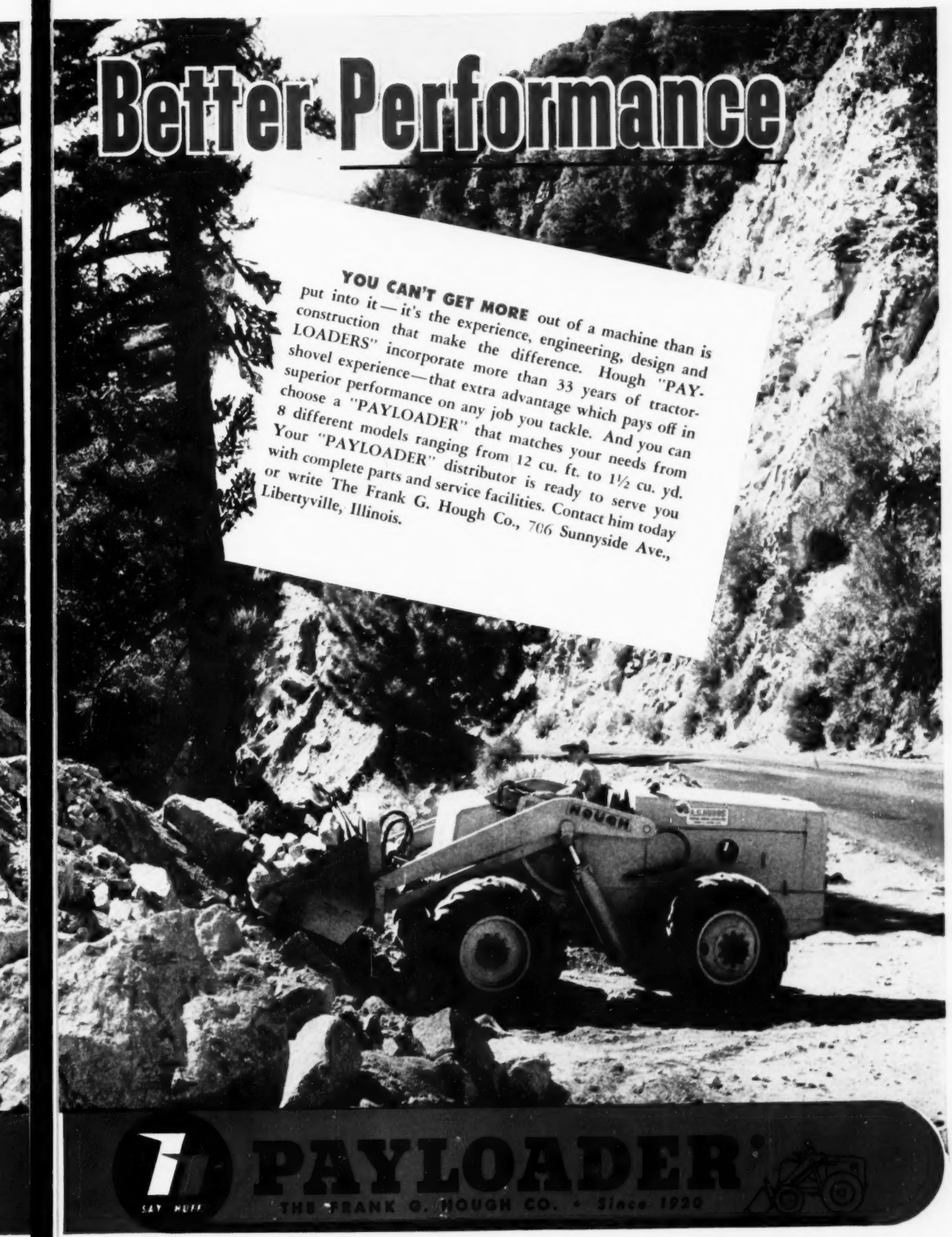
- bulldozer
- fork lift
- crane hook
- snow plows

MORE SPEEDS



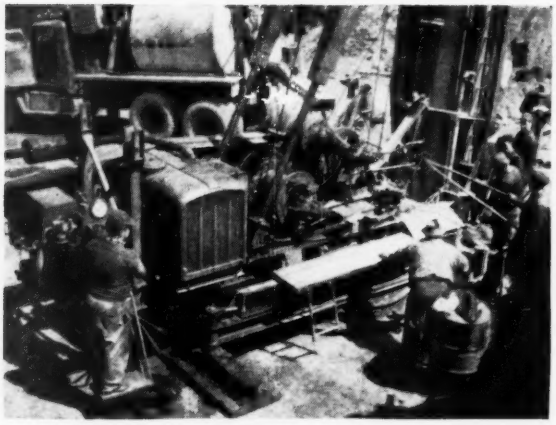
Tractor-shovel work involves considerable reversing. That's why "PAYLOADERS" have several reverse speeds *faster* than forward — plus a separate quick-acting reversing lever. These features insure faster, easier operation and more production.

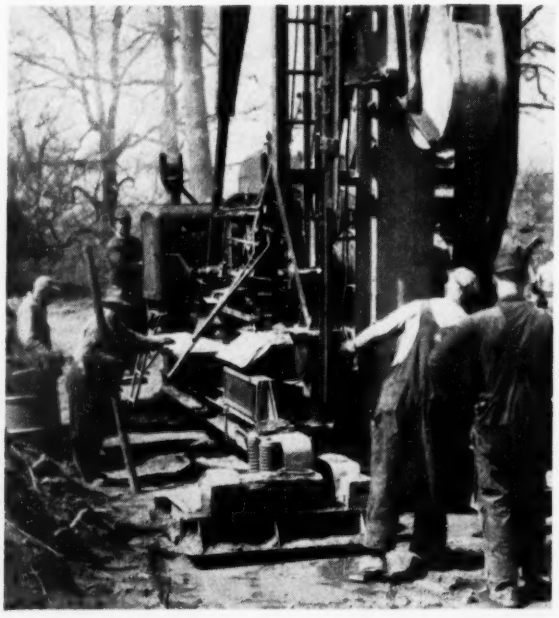
OVER 150 DISTRIBUTORS TO SERVE YOU


Better Performance
YOU CAN'T GET MORE out of a machine than is put into it—it's the experience, engineering, design and construction that make the difference. Hough "PAYLOADERS" incorporate more than 33 years of tractor-shovel experience—that extra advantage which pays off in superior performance on any job you tackle. And you can choose a "PAYLOADER" that matches your needs from 8 different models ranging from 12 cu. ft. to 1½ cu. yd. Your "PAYLOADER" distributor is ready to serve you with complete parts and service facilities. Contact him today or write The Frank G. Hough Co., 706 Sunnyside Ave., Libertyville, Illinois.
HOUGH
SAY HUFF
PAYLOADER
THE FRANK G. HOUGH CO. • Since 1920



Put down by this efficient rig . . .





1 MACHINE IS SPOTTED to drive one of 212 Franki displacement caissons for apartment in Riverdale section of New York City. Hydraulic jacks and rams move rig, which rests alternately on transverse end frames and sliding center turntable as it travels.

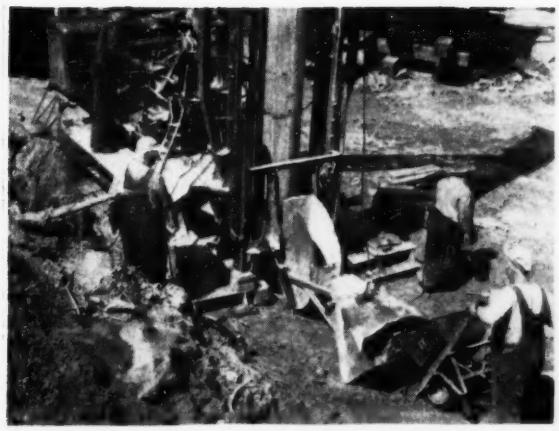
Displacement Caissons Support Big Load

CONCRETE CAISSONS designed to carry 120 tons each are being put down for a 15-story apartment house foundation in New York City. Comparatively new to the United States, the caissons have an enlarged base and are made of concrete compressed and forced into the soil by a heavy ram. They form, in effect, what might be called pressure injected spread footings. Franki Foundation Co., Pittsburgh and New York, is doing the job.

The machine that installs the Franki displacement caissons is somewhat like a piledriver in that it carries a set of leads and a heavy ram that acts as a drop hammer. In the leads is placed a heavy open-end casing (20½-in. dia, 1⅜-in. wall) of special alloy steel. A guide head holds it in position. The ram, a 3½-ton solid steel cylinder averaging 13 in. in dia and 18 ft long, operates inside the casing. Here's how the apparatus puts a caisson down:

The rig maneuvers itself until the casing is in exact driving location. Then 5 to 10 cu ft of gravel (3 to 5 cu ft of dry concrete will do) is dumped into the tube and tamped with the ram until arch action causes it to form a plug. The plug seizes the casing wall with enough friction to pull the tube down with it when the plug is driven into the ground by dropping the ram on it from greater heights.

After the casing reaches required depth, it is raised slightly by heavy tackle from the top of leads. Then the plug is knocked loose by the ram (in dry ground it can be rammed all the way out). Small batches of





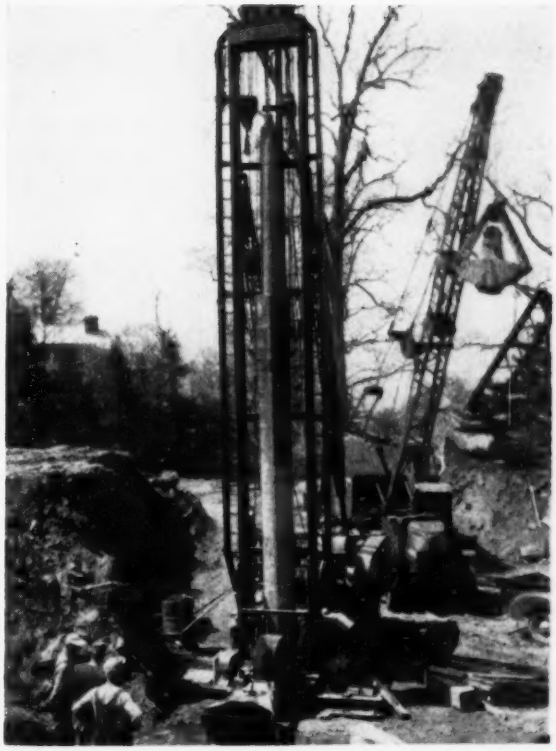
2 PLUG IS FORMED in bottom of 20½-in. dia open-end steel pipe casing by dumping 5 to 10 cu ft of ¾-in. gravel inside, then ramming it until it seizes tube tightly. The self-dumping skip, which holds 5 cu ft, rides up rails on the 30-ft leads.

dry concrete (less than 3½ gal of water per sack of cement) next are dumped in between casing and ram. By dropping the ram on them, these are forced out of the tube into the ground to form a spherical bulb of dense concrete.

When this enlarged footing has been completed, additional small charges of dry concrete are dumped in and rammed out as the casing is withdrawn. This results in a rough-sided 22- to 23-in. dia shaft of highly compacted concrete.

Accompanying step-by-step photos show how 212 of the Franki displacement caissons 14 to 26 ft long are being driven on the New York apartment job. Each of two machines there is putting down (through dry, miscellaneous filled ground) an average of 140 ft of caissons per 8-hr day.

For Franki Foundation Co., Bill Evans is general superintendent and Andy Deguee is job super. For architect-builder Henry Kibel, Steve Ross is superintendent.



3 CASING IS DRIVEN by dropping ram on to gravel plug in tip. This pulls casing down, in effect, and insures plumbness. Of solid steel, ram weighs 3½ tons, tapers slightly from maximum 14-in. dia, and is 18 ft long. Height of drop is 20 to 28 ft.

(More photos on next page)



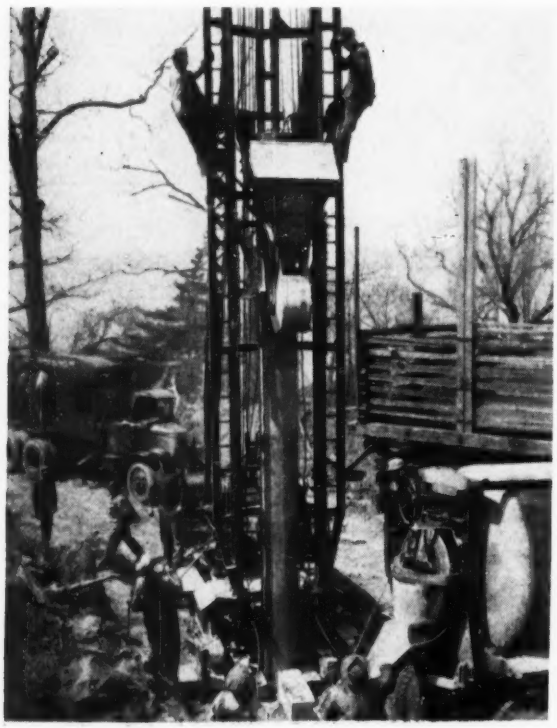
4 PLUG IS RAMMED OUT after casing reaches required bearing (ten 4-ft blows for 1-in. penetration). For this, tackle from top of leads pulls casing up about 4 in., one good blow from ram loosens plug. Further slight pulling and ramming expel it.



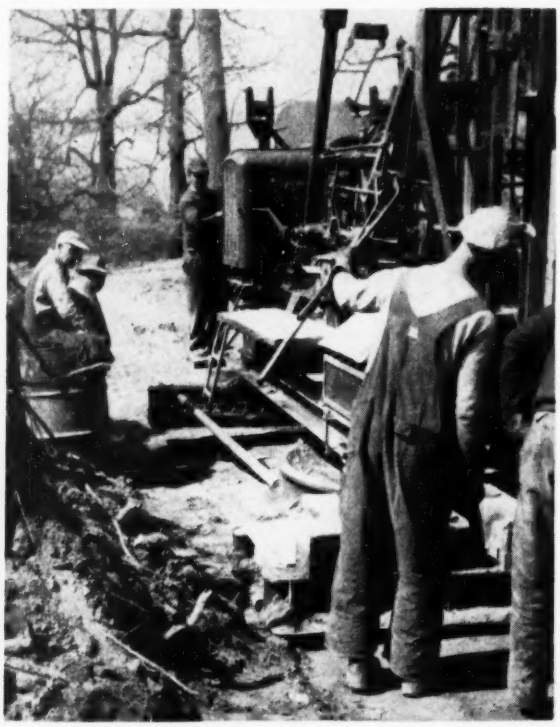
5 BULB IS MADE at base of caisson by dumping dry concrete into casing alongside ram, then forcing it out with 10-ft blows of ram. Bulb takes about 10 cu ft of concrete, added slowly from 5-cu ft hopper. Casing is not raised during this operation.



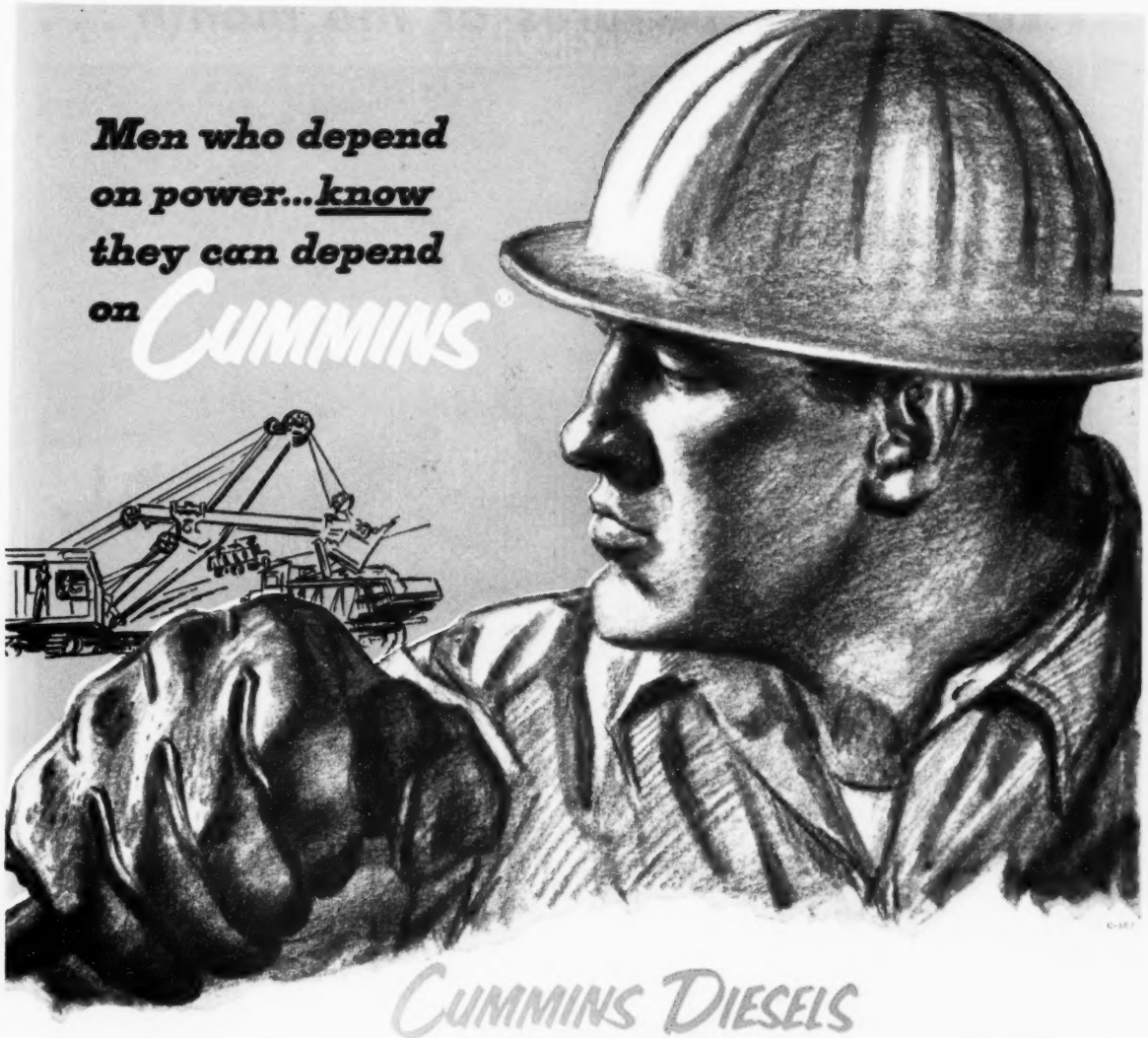
6 CONCRETE IS LOADED into skip for dumping into casing to make caisson shaft. Like that for bulb, this concrete is an extra-dry, 3,000-lb mix that is delivered by White truck carrying Rex 5½-yd Motomixer. In background, caisson load test is being readied.



7 SHAFT IS BUILT by dumping skip-load of concrete into casing and resting ram on top of mix. Then casing is raised about 3 ft, after which concrete is compacted and forced into soil with three 3-ft blows of ram. Concrete is never driven completely out of casing, to keep it watertight. Procedure is repeated until full shaft height is completed.



8 RIG IS WALKED to next caisson location less than 1 hr after it began at preceding one. On this 14- to 26-ft caisson job, it averages 140 lin ft per 8-hr day.



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(Advertisement)

LeTourneau pictures of the month . . .



"TURNS MOST ANYWHERE" — J. R. Dunn Lumber Co, Baxley, Ga. push-loads D Tournapull with 5½ yds of sandy clay, completes a typical 2.4 mi cycle every 8⅔ min. Says Operator Willie Lee, a skinner since 1945, "I like Tournapulls better than any crawler and pan. They do better work, have more power, turn most anywhere." "D" turns around non-stop on a fill only 25'4" wide.



9 TONS, NO SPILL — This 9-ton rig, one of two belonging to Everett & Clark, Plattsburg, Missouri, hauls 800 yds of shot rock and dirt per 8-hr day from pit to crusher. Material is used to make concrete building blocks. Big 7 x 11-ft target and low rear-entry speed shovel-loading of D Tournarocker . . . reduce spillage.



LIFTS, CARRIES LOAD OVER HWY — By retracting boom electrically to prevent sway, this Illinois operator carries crane loads safely through city traffic with D Tournacrane. Moving this garage was a short, fast job. With rope attached to building, crane picked it up and drove away. Tournacrane needs no outriggers, has stability to carry capacity loads.

(Advertisement)

performance reports the world around



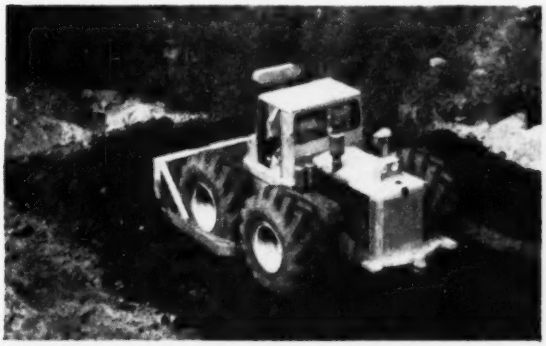
LICKS 35% GRADE — Loaded with 11 pay yds of sandy clay, C. H. Jurgensen's C Tournapull starts down 35% grade. With 4-wheel multi-disc air brakes, operator felt perfectly safe despite the steep slope. Time studies taken on 6200 ft cycles show he averaged 12 trips per 55-min hr. Rig is one of 8 electric-control Tournapulls used by Jurgensen on 740,000 yd leveling job at Camp Pendleton, California, the nation's largest Marine base. In 1200 hrs on job, all units were 97 to 98% efficient.



DOUBLE-HEADER — This Tournatractor means business at both ends. Here, it lifts and carries a P & H welder from one job location to another. Crane boom was designed by Standard Sand & Silica Co, owner, of Davenport, Florida. It uses regular LeTourneau electric motor and winch, has capacity of about 3 tons. Tournatractor's front end mounts standard LeTourneau dozer. It is used to doze tailing material . . . clear trees . . . strip overburden . . . maintain roads . . . switch railroad cars . . . handle many other widely-scattered push-pull assignments.



280 MI IN 14 HRS — Scholl Bros, Pewaukee, Wis, drive their 3 D Tournapulls everywhere under their own power. A typical trip, Milwaukee to Waukesha, a 40 min drive by car, took the "D's" exactly 1 hr through heavy traffic. A 17 mi trip from Sussex to Milwaukee took 45 min. A longer journey, 280 mi from Peoria (Ill.) to Pewaukee, took 14 hrs, total driving time. Tournapulls are equally fast on the job. Digging marsh sand, each unit moved 78 pay yds hourly over 2600 ft cycles.



9000 FT UP — In the Andes Mountains of Ecuador, this Tournatractor is building causeways for the famous Pan-American Highway. Rig goes up and down steep slopes where trucks dare not venture. Stanley Williamson, highway engineer for the Ecuador Government, owner of the machine, reports they will complete this 30,000 yd causeway fill in one month.



50 TONS EVERY 4½ MIN — Stripping overburden from two soft coal veins near Clearfield, Pa, big "A" Tournarocker carries 50 tons of slate, shale and clay per load. Time for 400-ft cycle averaged 4½ minutes.

Cont'd on next page

LETOURNEAU LET EQUIPMENT

(Advertisement)

LeTourneau pictures of the month (cont'd) . . .



THE GREATEST OF EASE—No twisting, no turning, no wrestling bulky levers for Tournatractor operator. All he does to steer, change gears, operate blade is flick a dashboard switch. Electricity does all the work. Even in wet clay, this ease of operation pays off. This unit, assigned to push-load 5 C Tournapulls on a 434,000 yd road job in Delaware, accounted for 75 to 80 loads per 50-minute hour . . . all day long. Load time for 10 pay yds averaged 35 sec. Despite short 600 ft hauls, the one pusher kept all five Tournapulls going steady. "Tournatractor is easy to handle," says operator. "It rides nice, has plenty of push."



STRIPPING FOR STEEL—To meet a vastly increased demand for limestone from the steel industry, Kelley Island Lime & Transport Co, Cleveland, works 2 C Tournapulls 16 hrs per day stripping limestone at their Marblehead quarries. The 2 units combined remove 418 to 436 bank yds of rocky loam overburden per 50-min hr. Average cycle: 2200 ft. Number of trips per hour per unit: 19.



FILLING AN INSIDE, STRAIGHT—At Chittagong in East Pakistan, 7 Tournarockers are helping move 3,500,000 yds of sand and clay for port improvement. Dumped in and around new warehouses, material will raise ground level 3 to 4 ft to prevent flooding during the monsoon season. Haul varies from 2½ to 3½ miles. Tournarockers carry 18 tons of conveyor-loaded beach sand per trip . . dump it in a single pile, or spread it on the run, in straight, uniform windrows.



NO STRESS, NO STRAIN—Texas contractors, T. R. Vardeman & Son own 4 D Tournapulls . . . report each rig "moves 1000 yds per 10 hr day with average efficiency at 95%". Faster haul speeds over rough ground are made possible by pivot between Tournapull scraper and prime-mover which eliminates tilting strains.

LETOURNEAU LET EQUIPMENT

Write LeTOURNEAU-WESTINGHOUSE CO., Peoria, Illinois, for details.

Tournapull, Tournacrane, Tournarocker—Trademark Reg. U. S. Pat. Off. Tournatractor—Trademark Pic. 448-G



TRACTOR SHOVEL makes short work of loading a truck from an adjacent earth bank on a construction job. The unit is owned by the Atomic Energy Commission and is employed on the Savannah River Plant site in South Carolina.

Tractor Shovels

Part 2: Correct Operating Procedures

By R. D. EVANS, Assistant Manager, Sales Development, Caterpillar Tractor Co.

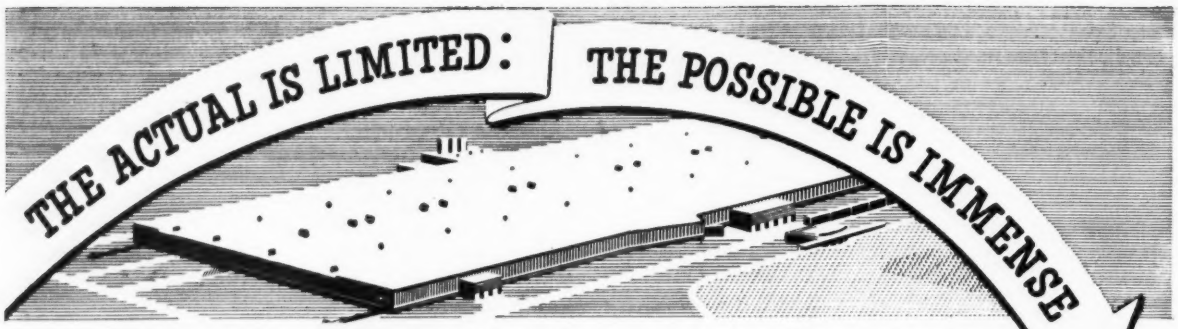
THERE ARE FOUR METHODS of filling the tractor-shovel bucket. One method could be termed "horizontal skimming." In filling the bucket this way, the bucket is allowed to penetrate below the track line a few inches and held at that depth as a crowding action is applied to the bucket. If the depth of the cut is too deep for the material being loaded, the tractor will be stalled before the bucket is filled. In general, this method is employed in basement work and in some grading work, depending on the depth of the cut.

Method 2 could be termed the "vertical skimming" method and is sometimes used in loading of light, loose material, such as sand and gravel. In this method the tractor is moved forward until the bucket has penetrated the material. The forward motion of the tractor is then stopped and the tractor shovel hoisting clutch or lift lever engaged, skimming the bank.

Method 3, a combination of Methods 1 and 2, is by far the most efficient of operation in bank cuts and most stock-pile loading. Less clutching of both tractor and tractor shovel is employed in the use of this method, and easier filling of the bucket is obtained. It is the method most generally used. When Method 3 is used, the tractor is moved forward at the same time as the bucket is being raised.

Method 4 is a poor way of operating a tractor shovel. In employing this method, the tractor is moved forward until the bucket penetrates the material, then the

(Continued on page 111)



NEW LINCOLN PLANT CREATED BY INCENTIVE-INSPIRED CO-ACTION IN DEVELOPING POSSIBILITIES IN PRODUCT

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WELDING SIMPLIFIES DESIGN...speeds construction

By **Raphael H. Courland,**
Civil Engineer, A.S.C.E.
New York City

A SAVING of 46% in steel has been effected by shop welding vierendeel trusses used in this 7 story framework. Fabricating has been done faster and for less cost than would have been possible had conventional floor girders been used in spanning the 41' 8" over the second floor auditorium.

Each story high truss uses 10¾ tons of steel at $207 per ton, costs $2200 erected in place. Had conventional design been used, 20 tons of steel would have been required costing $4100, almost twice as much.

The trusses are shop fabricated at low cost by welding standard rolled sections. Top and bottom chords are continuous in design with 11½" vertical members butt welded between chords.

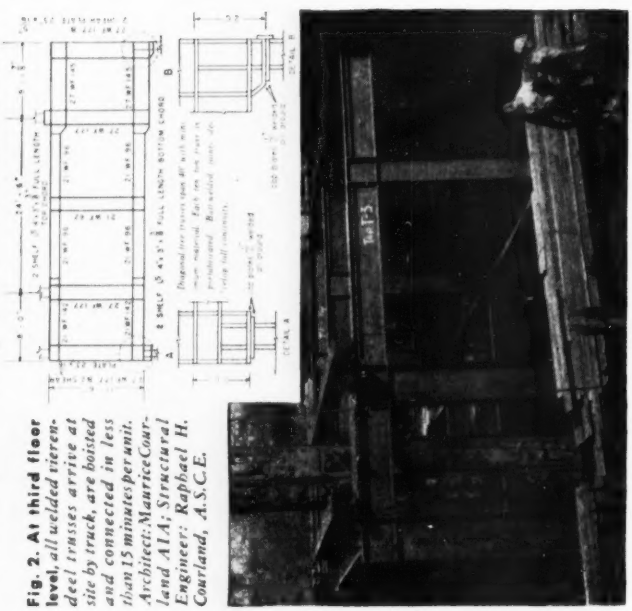


Fig. 2. At third floor level, *all welded vierendeel trusses arrive at site by truck, are hoisted and connected in less than 15 minutes per unit. Architect: Maurice Courland AIA; Structural Engineer: Raphael H. Courland, A.S.C.E.*

WELDED DESIGN CUTS STEEL 46%

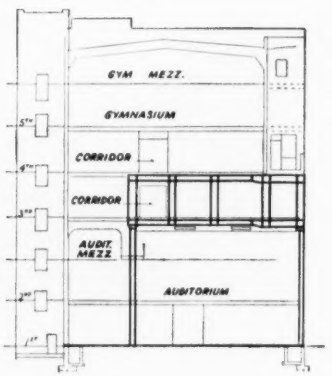


Fig. 1. Diagonal-free trusses *on 7 story structure for the Flatbush Jewish Center, Brooklyn. Trusses are pre-fabricated by welding with joints butt welded to develop full continuity. Weight is 10¾ tons compared to 20 tons for conventional design . . . saving 46% on steel.*

AND CUTS COST 50%

HERE'S HOW

Studies in Structural Arc Welding free on request.
Designers and Engineers write on your letterhead to Dept. 2703.

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CLEVELAND 17, OHIO

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Estimated Tractor Shovel Production . . . Cubic Yards or Tons Per Hour

MODEL T2 TRAXCAVATOR

DESIGNATION OF MATERIAL	BUCKET SIZE CU YD*	Units	DISTANCE HAULED IN FEET 25	50	75	100	150	200
Basement Digging	3/4	Cu Yd	56	45	37	32	25	20
Coal, Steam — from stock pile	1	Tons	74	53	41	34	25	20
Common Earth Excavation	3/4	Cu Yd	67	52	42	35	28	22
Manure	7/8	Cu Yd	95	70	55	45	34	27
Sand & Gravel — from stock pile	3/4	Cu Yd	77	58	46	38	28	23
Snow Loading	1	Cu Yd	125	88	68	55	40	32
Stripping Overburden	3/4	Cu Yd	72	55	44	37	27	22
Standard Nitrates (Shanks) — from stock pile	3/4	Tons	75	55	43	35	—	—

MODEL HT4 SHOVEL

Basement Digging	1 1/4	Cu Yd	91	73	61	52	41	33
Coal, Steam — from stock pile	2	Tons	142	102	80	66	48	38
Common Earth Excavation	1 1/4	Cu Yd	108	83	68	57	44	35
Shot Rock	1	Cu Yd	67	55	46	40	31	26
Sand & Gravel — from stock pile	1 1/4	Cu Yd	122	93	74	62	46	37
Snow Loading	2	Cu Yd	238	169	131	107	78	62
Stripping Overburden	1 1/4	Cu Yd	116	90	71	59	45	36
Standard Nitrates (Shanks) — from stock pile	1 1/4	Tons	131	88	69	57	—	—

Caterpillar Tractor Co.

NOTE: Indicates loose measure: To obtain "pay" yards for such items as basement digging, etc. the quantities shown should be multiplied by: For sand—90%; Earth—80%; Clay—70%; Well Shot Rock—65%; Poor Shot Rock—50%. Figures based on 50 minute—hour.

material is broken loose by hoisting the bucket. The procedure is then repeated until the bucket has been filled.

Of equal importance to the method of operation of the tractor shovel is the proper laying out of the job. An important factor in laying out work is positioning of trucks or hauling units for loading.

Much of the repair and maintenance cost of tractor and shovel is due to stresses and strains imposed upon the machine by turning during the loading operation. You can expect that the less turning and traveling, the less will be the wear on the tracks, steering clutches and brakes. It is also reasonable to consider that the shorter the travel distance, the less power used in turning and the faster will be the loading cycle.

Load Over Side

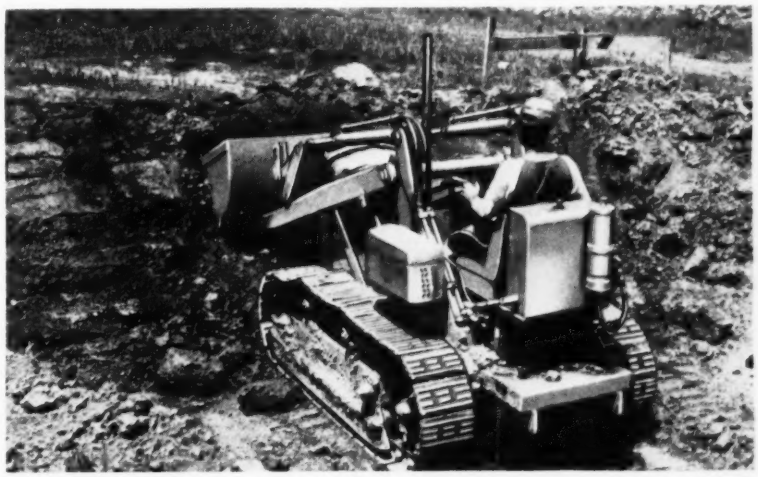
In general, it is best to load hauling units from the side rather than over the end. A much better balance of the hauling unit load may be obtained this way. It is practical to load some units from the end, depending upon the shape of the hauling unit, box or bed, but end loading depends upon bucket width and capacity. There are, however, some small trucks and rail cars that may be successfully loaded from any point by the small size tractor shovels.

In one job layout, the tractor shovel does no turning at all, merely shuttles in and out of the material. When the bucket has been loaded and the tractor shovel

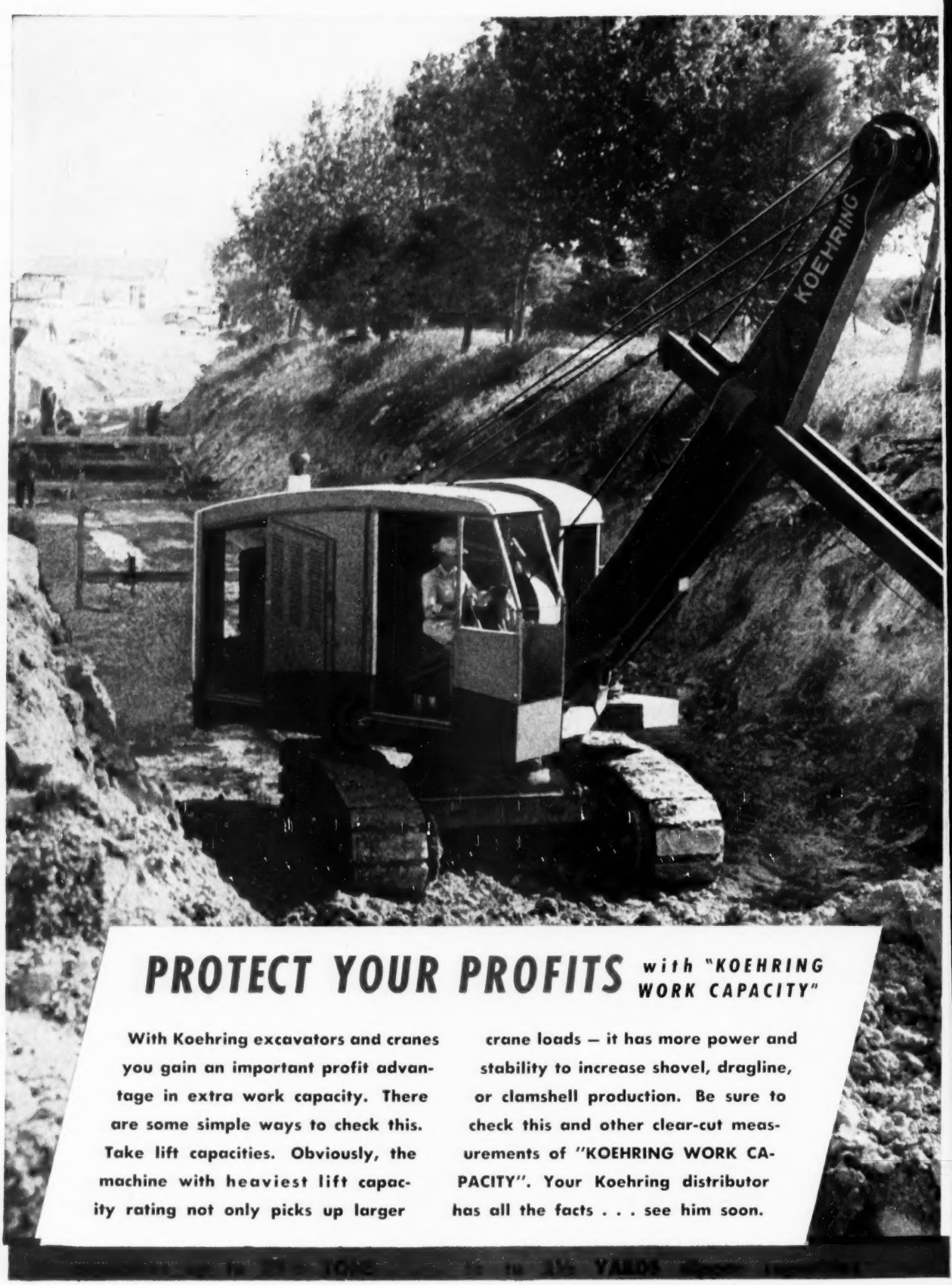
(Continued on page 114)



FINISH GRADING of a city street is handled effectively by this operator with his HT4 and hydraulic controls. The shovel also removed concrete, asphalt and earth before paving.



DIGGING BASEMENTS can be done to accurate dimensions with a tractor shovel. This Oliver Model B crawler can bring its load out of the excavation.



PROTECT YOUR PROFITS with "KOEHRING WORK CAPACITY"

With Koehring excavators and cranes you gain an important profit advantage in extra work capacity. There are some simple ways to check this. Take lift capacities. Obviously, the machine with heaviest lift capacity rating not only picks up larger crane loads — it has more power and stability to increase shovel, dragline, or clamshell production. Be sure to check this and other clear-cut measurements of "KOEHRING WORK CAPACITY". Your Koehring distributor has all the facts . . . see him soon.



50 to 125 CU. YD. Johnson Roadbuilders Bin

Flexible All-Welded Roadbuilders Bin gives you a portable batch plant for 2, 3 or 4 aggregates, or converts to transit-mix (shown) or central-mix plant for bulk cement and 2 or 3 aggregates. Can be equipped with 1 or 2 multiple material Hi-Speed Batchers, size 34 Roadbuilders Batcher, or truck-mixer charging batcher in 2, 3 or 4-yd. sizes. Bin available with 2, 3 or 4 compartments, 50 to 125 cu. yds. Also: silos, elevators, buckets.

C. S. JOHNSON *(Koehring Subsidiary)*
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Saving important seconds on every batch of concrete, tilted Flow-Line Discharge Chute pours full 12.1 cu. ft. batch in 7 seconds. Kwik-Mix 11-S Dandie® also has side or end discharge, 2 or 4 wheels, and special tower attachment. Other sizes: 3½-S to 16-S. Also check Kwik-Mix bituminous, tilt and non-tilt plaster-mortar mixers . . . and Moto-Bug® (power wheelbarrow) shown here. Ask your Kwik-Mix distributor for all facts.

KWIK-MIX *(Koehring Subsidiary)*
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On utility, drainage and irrigation trenching, you can dig up to 17½ ft. per min., 13 to 31 in. wide, in depths to 6 ft. with this 202 wheel-type Trenchliner. It has: square or round-bottom buckets; quick-change bucket fronts with cutting lips or "Tap-In" teeth; 16 or 20-in. crawler shoes; gas or diesel engine. Tile box and chute optional. Also check 215 wheel-type; 3 big ladder-types, full crawler mounted; utility Trenchliner on rubber.

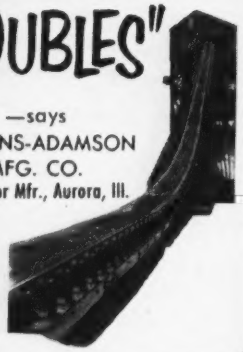
PARSONS *(Koehring Subsidiary)*
Newton, Iowa

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"NO MORE LUBRICATION TROUBLES"

—says
STEPHENS-ADAMSON MFG. CO.
Conveyor Mfr., Aurora, Ill.

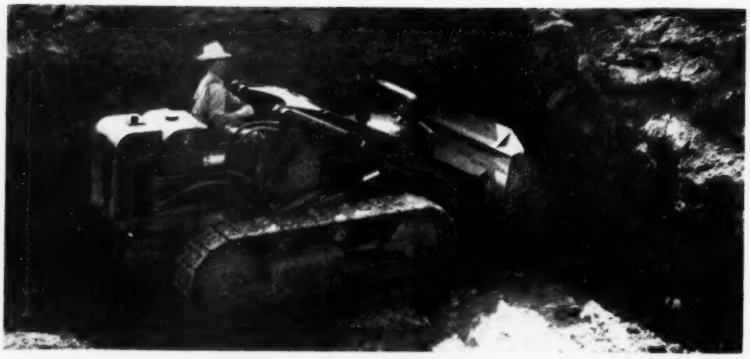


"LUBRIPLATE Lubricants satisfy the 'one-shot' requirements of our conveyor idlers. LUBRIPLATE effectively lubricates each bearing in turn and flows through the hollow shaft to the next bearing. We do not know of a single case of bearing trouble through faulty lubrication where LUBRIPLATE has been used."

For nearest LUBRIPLATE distributor, see Classified Telephone Directory. Send for free 56-page "LUBRIPLATE DATA BOOK"... a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.

REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.





SQUARING THE CORNER is easy with a tractor shovel. The side walls can be kept straight and little excavation left for hand cleanup. This TD-9 dug 250 basements on one site.



BORROW-PIT LOADING is a natural for this HT4, loading sand into trucks for haul to a portable crusher set up on a sewer construction job in Oakland, Calif.



OUT ON THE FARM a TD-6 crawler with Hough dozer shovel loads creek gravel for use on roads and fill around barns. Tractor also cleans out ditches, digs basements and silage pits.

backed away, the truck is run into position to dump the bucket. After the bucket has been dumped, the truck moves away until the tractor shovel bucket has been loaded and backed in position so that the truck may be positioned again. This procedure is continued until the truck has received its full load. This is a slow business and not generally used. It requires close coordination between the hauling unit operator and the operator of the tractor shovel and is not the method that would be commonly recommended.

The second position is where the

(Continued on page 116)



Wire Rope at Work—As you draw near New York City at the northern end of the 118-mile New Jersey Turnpike, this is the bridge that carries you high above the Passaic River. The picture, taken at a time when the bridge was near completion, shows two 146-ton girders for the main span being lifted simultaneously into place by Bethlehem Wire Rope.

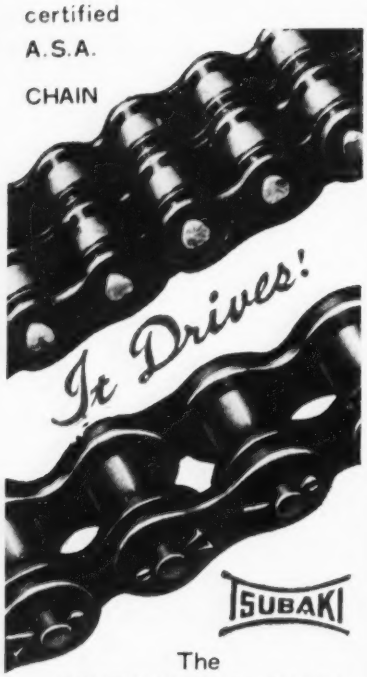
These heavy steel girders made a tough lift, but no tougher than thousands of others entrusted to Bethlehem rope all over the country. Wherever there are heavy lifting or hauling jobs to be done, you will find Bethlehem rope right in the thick of things, hard at work. You will always know it by the black-and-yellow reel, the reel that tells you, "Here a good product is in service."

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

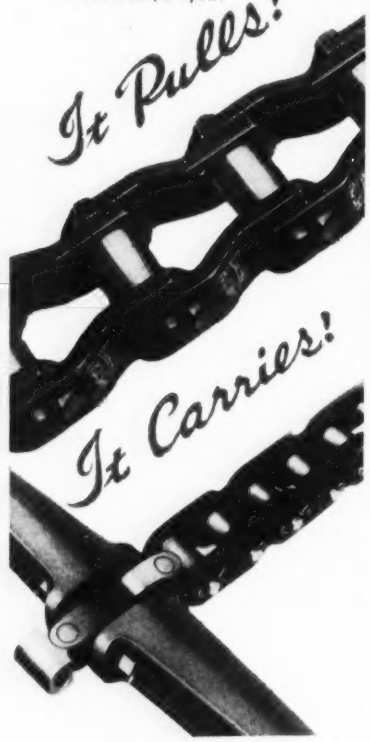
Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others:
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TRACTOR SHOVELS . . .

Continued from page 114

tractor shovel would be turned 90 deg in dumping the bucket after it has been filled. This is a fast method of loading and can be handled efficiently. The truck is backed as close as possible to the material being loaded. A crawler tractor requires very little room for turning if one track is locked. However, more strain and wear will be imposed upon the tractor track parts in doing so.

When the floor on which the machine is working is relatively hard and when the machine is equipped with flat track shoes, loading may be done advantageously in placing the truck in this manner. If the machine is equipped with grouser track shoes, or the floor upon which the unit is working is rather soft, by turning 90 deg the floor or footing will be dug out, making the turning rather difficult.

Positioning The Truck

Whenever possible, position the hauling unit so that the tractor shovel will have to swing only 30 deg or less to deposit the material into the hauling unit. In positioning the truck and laying out the work in this manner, the distance of travel of the tractor shovel will be increased slightly; however, the track wear will be decreased due to less turning of the machine. This method is fast, has a minimum of strain on track parts, and is usable if the footing is too soft to make 90-deg turns possible.

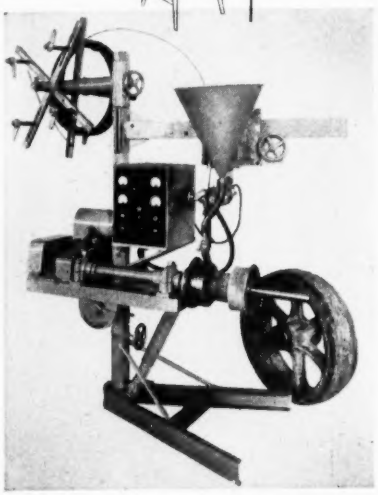
With but a 20-deg angle of turn the distance of travel will be increased, but track wear and disturbance to the operating floor is minimized. The same applies to a greater extent for a 10-deg swing. Here you approach, however, a distance of travel that may result in almost as much wear as a far shorter distance with a sharp turn. Justification for use of the extreme travel necessary for a 10-deg swing would be extremely soft footing conditions and the need to avoid tearing up the floor.

The speed and efficiency of loading material is greatly increased by the proper balancing of the hauling unit to the tractor shovel bucket capacity. For most efficient operation the capacity of the hauling unit should be at least three times the capacity of the bucket used. Therefore, for a ¾-yd tractor shovel the smallest hauling unit to be used should be a ma-

(Continued on page 118)

WELDING THAT IS
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Rebuilding rollers, idlers, crusher rolls and other circular shapes is fast and simple—with a Rexarc Automatic Welder and Positioner.

Metal is deposited at a fast rate with complete control over low arc voltage and amperage, minimizing stress and dilution of the parent metal. High frequency starting and stabilization assures a steady arc. Welding can be lineal or cross-bead, continuous or in sequence.

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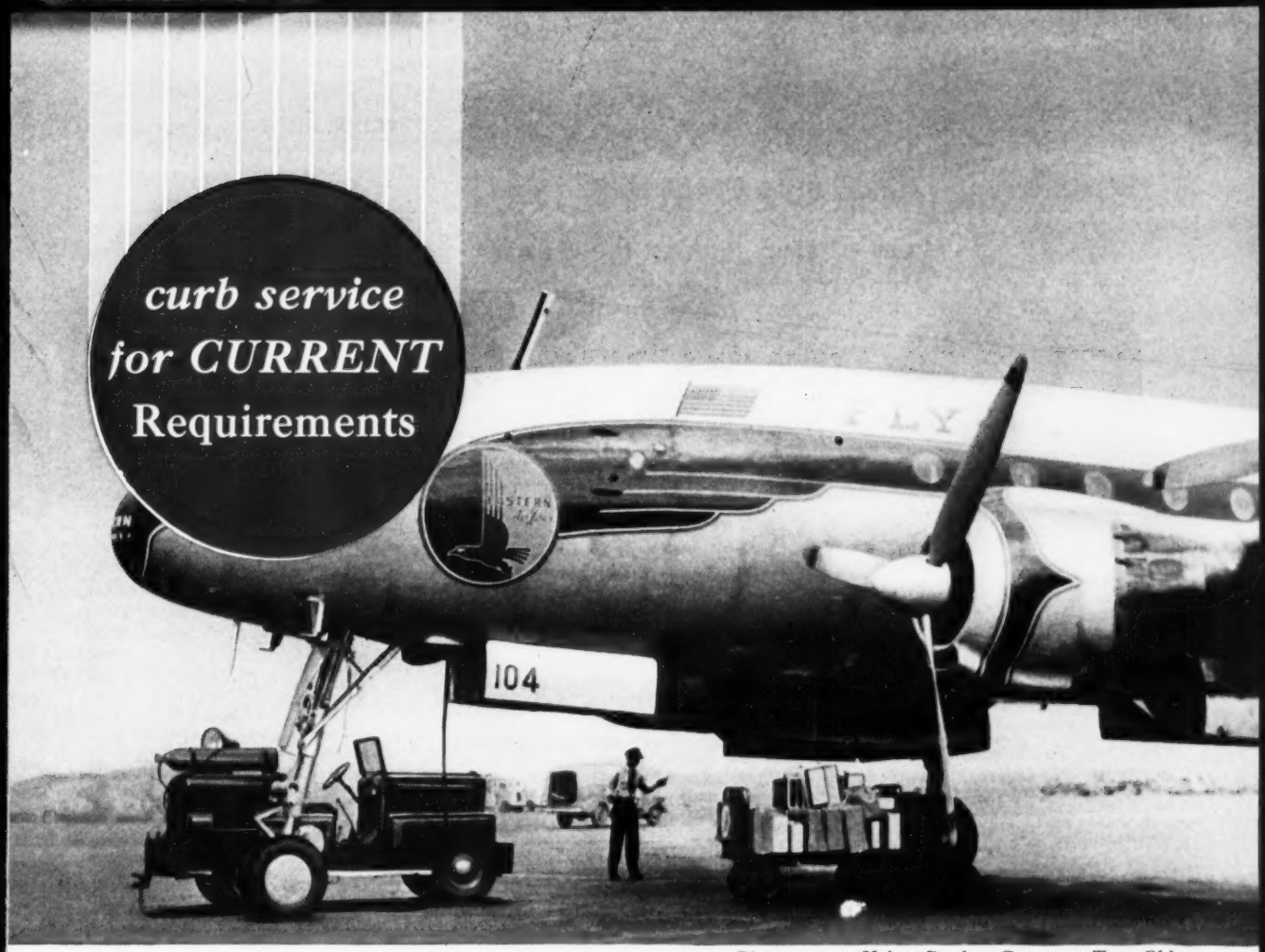
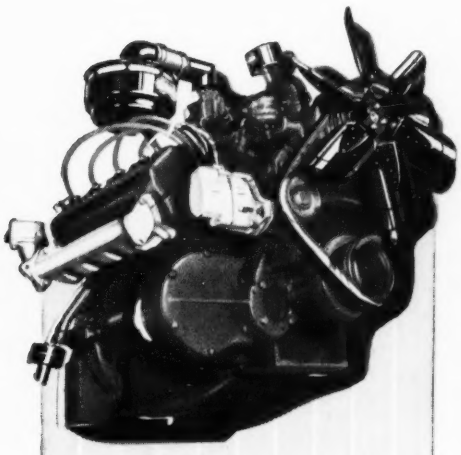


Photo courtesy Hobart Brothers Company, Troy, Ohio

Chrysler horsepower on the ground for added Safety in the Air . . .



The moment the big plane stops and the pilot cuts the engines, the generators, which in flight supply electrical power to the batteries, stop too. But the electrical equipment in the plane—air conditioning, lights, radio, food containers, everything electrical—continue operating off the plane's batteries. Only for a moment, however. In that length of time a self-propelled and self-powered energizer takes over and supplies all necessary current, even starting the plane's engines when it's time to leave.

Among the most popular mobile ground power units are the "Power-Pull" units manufactured by Hobart and powered by Chrysler. The unit pictured uses the mighty 180 horsepower Chrysler V-8 Industrial Engine and can furnish 1000 amperes, 28.5 volts of direct current under continuous operation—enough to handle the electrical load of the largest aircraft. Power from the same engine propels the unit, enabling it to serve also as a towing tractor.

This is another in the long list of important uses of Chrysler Industrial Power. Whether your equipment requires V-8 or Six cylinder engines, Chrysler can supply them with gasoline, propane or natural gas burning carburetor, 3, 4 or 5-speed transmission and other optional equipment.

For your power needs, see a Chrysler Industrial Engine Dealer, or write. ***Dept. 96, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.***

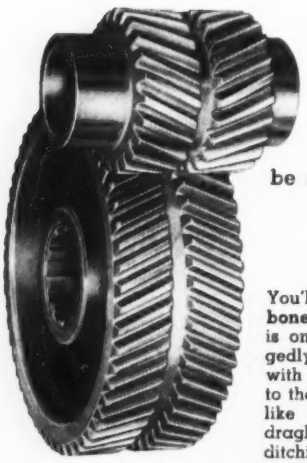
CHRYSLER

Industrial Engines

HORSEPOWER WITH A PEDIGREE

When you  buy an engine

take a good look at the **gears**



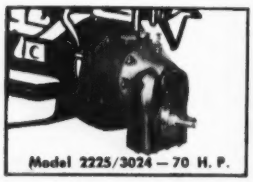
be sure they are **S-N**

REDUCTION GEARS

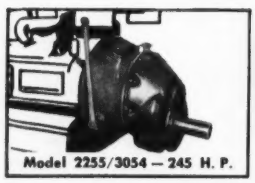
You'll find the world famous S-N heavy duty herringbone Reduction Gears wherever heavy duty equipment is on a continuous, grueling assignment. They are ruggedly designed for efficient, around-the-clock operation with all types of engines from 40 H.P. units right on up to the 775 H.P. giants! This means heavy duty equipment like cranes, pumps, locomotives, shovels, generators, draglines, compressors and all types of dredging and ditching equipment.

They Ease You Through the Tough Ones

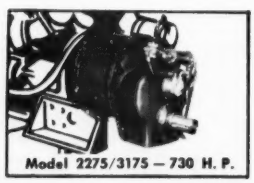
S-N herringbone Reduction Gears are especially designed to transmit full power from engine to load smoothly — at the most economical speed for the driven equipment. Rugged—compact—and versatile—S-N heavy duty herringbone Reduction Gears deliver more power per gallon of fuel than any other method of speed reduction. Standard ratios available in 1.5:1, 2:1, 2.5:1, and 3:1 in both anti-engine and engine rotation. Special ratios available in some models up to 4.7:1. S-N engineers will gladly assist you in specifying the best unit for maximum performance on your equipment.



Model 2225/3024 — 70 H. P.



Model 2255/3054 — 245 H. P.



Model 2275/3175 — 730 H. P.

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Transmission Engineers

FOR NEARLY HALF A CENTURY

INDUSTRIAL DIVISION

THE SNOW-NABSTEDT GEAR CORP., HAMDEN, CONN.

The Extra trailer for Extra production

MILLER *Tilt-Top* CUTS job-to-job time for slow machines



MILLER "B" 10 ton shown above loading D-4 tractor

SEE YOUR DEALER or WRITE

Where large flat bed trailers are usually too cumbersome for lighter hauling . . . a MILLER Tilt-Top is always handy for moving slow machines from one operation to another. Self-moving equipment practically loads itself onto tilted platform and can be towed to the next operation in jig time . . . cutting non-productive time for operator and equipment to a minimum. Standard platform is 14' x 8', optional 16' available.

MODEL "B" 10 TON $1175.*

The following equipment is optional and extra: hydraulic tilt control, two speed winch, electric brakes.

**Plus freight and Federal Tax.*

Tilt-Top TRAILERS

MILLER RESEARCH ENGINEERS

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TRACTOR SHOVELS . . .

Continued from page 116

chine capable of hauling at least 2½ yd. The smallest hauling unit for a tractor equipped with a 2-yd bucket should be a 6-yd hauling unit.

In general excavations there are so many factors that must be considered in deciding upon the method to be used that no set rule or method can be applied in all cases. Rather, each basement excavation or other excavation is an individual problem and has to be worked out on the job.

The proper placement of ramps, keeping the excavation walls trimmed and straight as excavation progresses, proper disposal of excavated material and the method used influence the time required to complete a job. Even the way the excavation is staked out will have much to do with the quality of the work produced.

Excavation Procedures

In staking out a basement, it is always desirable to have offset stakes to supplement the corner stakes, as the corner stakes are generally lost or destroyed shortly after the job has been started. These offset stakes are practically a necessity, if the excavation is to be dug to the exact wall sizes.

In some instances, the excavation has to be dug to exact size with perfectly straight walls so that the excavated wall may be used as the outside form for pouring a concrete wall. In that case it is quite necessary to have stakes which are not easily destroyed, and the work should be done so that the excavation can be finished entirely by the machine with little or no handwork for finishing. Wherever walls should be vertical, a bucket wider than the widest part of the tractor is desirable.

The first step in an excavation is the removal of topsoil. In most areas topsoil is valuable material and is not mixed with subsoil. The topsoil is generally stripped off the basement excavation site and placed in a stock pile at either the front or rear of the excavation, where it will be out of the way during construction. If the dirt from the excavation is to be hauled away by trucks, it can be expected that the time to make the excavation will be longer unless the excavation is large enough to have the hauling unit enter.

When the material is to be car-

(Continued on page 120)



With the multi-purpose Gradall you can do it...



BETTER...

Yes, the Gradall operator has such complete control of the telescoping boom and wrist-like action of the tool that jobs are not only done better, but often to hand finish "specs". Here the Gradall's positive down pressure enables the operator to dig small holes—deep and neat—and a straight, narrow trench, ready for pouring foundation footings without any additional forms. Such accurate work is not confined to the "wide open spaces", because the Gradall works in many tight places, even inside buildings, completely inaccessible to other machines.



FASTER...

Where other machines falter, the Gradall's speedy arm-action and positive down pressure really go to work! For instance, in ripping asphalt pavement one attachment scores the pavement. Then with a second attachment the Gradall removes large chunks, swinging around to load into trucks—all in one pass. Pavement is removed right down to the sub-surface, eliminating clean-up hand labor. Similarly, it removes grouted brick so smoothly that most of the brick can be reclaimed.



FOR LESS...

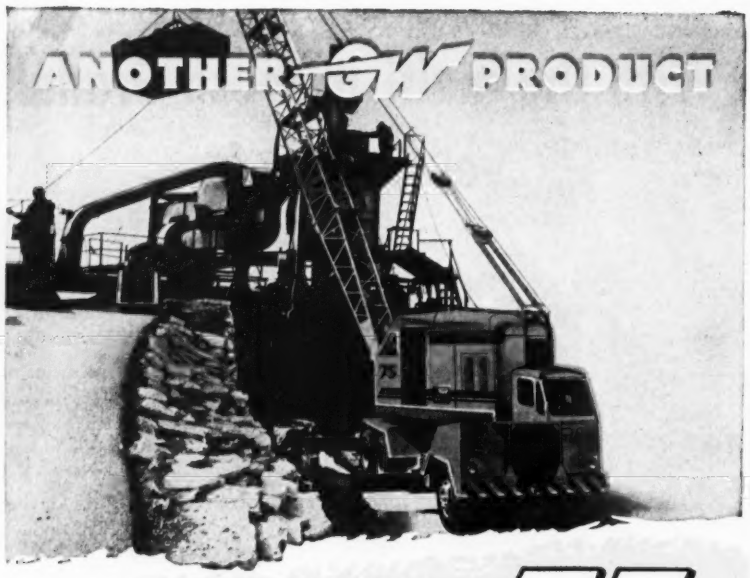
When one machine can replace several machines, or as many as 40 hand laborers—and do the job better and faster—savings are bound to mount! A quick, easy change of attachments makes the Gradall an entirely "new" machine, enabling it to often do all of the phases of a complex job. On the job illustrated, it cut this slope to the exact desired angle, dug ditches for drains, and handled other work accurately and fast—without hand labor. Yes, the Gradall is a cost-cutter on all kinds of jobs!

Find out how a Gradall can make money for you! Contact your Gradall Distributor for a field demonstration.

Gradall
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PRECISION MACHINERY SINCE 1880

Gradall Distributors in over 75 principal cities in the United States and Canada

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY



GarWood 75

A Heavy-Duty Truck Crane that can Lift up to 20 Tons!

Gar Wood's 75BT truck crane gives you a specially designed, heavy-duty chassis for mobility and speed with full 40,000 lb. lifting capacity . . . Folding boom for easier handling in heavy traffic . . . High gantry, optional fluid coupling to absorb shock loads and power load lowering can't be beat for smooth, precision work! . . . Power actuated mechanical drum clutches, exclusive right angle drive, conical hook rollers and many other operating advantages for faster, easier work . . . The 75BT truck crane is quickly convertible to all attachments including the new, exclusive, profit-making Gar Wood Foundation Borer — the machine that bores and bells in one fast operation . . . Get details from your dealer—

TWO CRAWLER MOUNTED CRANES!

Standard-duty 75A and heavy-duty 75B models. With 35 ft. boom on 12 ft. radius a 75A lifts 16,500 lbs. and a 75B, 21,200 lbs. . . . Both are easily convertible *in the field!*



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GAR WOOD INDUSTRIES, INC.

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F-530

TRACTOR SHOVELS . . .

Continued from page 118

ried from the basement or excavation by the tractor shovel, the disposal of that material is very important. The material should be dumped into four piles starting some distance from the basement and at each of the four corners. Piles should be far enough from the ramp to allow sufficient room to stack the material without interfering with maneuvering of the tractor.

Location of Ramps

Location of the ramp or ramps is determined to a great extent by the terrain and shape or size of the excavation. The ideal condition is to have two ramps, on opposite sides of the excavation and offset from each other. Location of ramps in this manner is particularly important if one ramp is left on the inside of the basement. If the excavation is to be dug in such a manner as to leave the four walls suitable to be used as outside forms, it must be dug with the ramps on the inside. The ramps are then taken out, and by using timbers the tractor shovel can be driven from the excavation.

When the ramps are left in the position described, the maneuvering of the tractor is reduced to a minimum. The machine is backed into the basement and is loaded. After loading the bucket, the tractor is driven up the ramp in a forward gear. After a layer of material has been removed from one completed side of the excavation, the tractor is turned and ramp on the opposite side of the basement is used following the same travel course as in excavating the first side. In this manner the tractor does not turn around while digging the entire width of the basement in one direction. Moreover, the balance of the unit is ideal in that the bucket is always kept on the uphill side in traveling on any slope or ramp.

In properly laying out the work in this manner, counterweights are seldom required. A complete excavation should be handled by alternately digging opposite directions when excavation has been accomplished across the complete face of the area to be dug. The thickness of each cut or layer depends to a great extent upon the type of material being dug. It has been found through experience that seldom will these cuts be more than 12 in. deep. In a 6-ft excavation there would be six of these

cuts and six reversals of direction of working the tractor shovel.

The first cut or first 12 in. will be removed quickly and easily. The second will take longer to remove than the first, and the third still longer than the second. This continues and, the deeper the excavation, the longer it takes to remove each succeeding layer. Operating the tractor shovel in this manner, similar to bulldozer operation, is by far the most efficient method.

It is advisable at all times to keep the basement wall trimmed and straight as each successive cut is made, then little time is lost in finishing. In this manner also the sides and all the basement should be completed at the same time, except on basements where a ramp is left on the side. There should be but one ramp remaining and that cut to as steep a slope as possible for the machine to climb out. This ramp may be removed by the tractor shovel by dumping the material along the edge of the cut and using timbers and blocks to get the machine out of the excavation. If timbers are not available, it may be necessary to cut an outside ramp.

Handling Excess Material

Not all excavations are on level ground. In a majority of cases, excess material will be used in leveling the fill in the immediate vicinity instead of being hauled away for disposal. In doing the work properly the topsoil not only from the basement surface but from all the fill area should be stripped and stock-piled where it can later be used to cover the fill. Here, as in many other operations, the tractor shovel works while it moves. In carrying out an excavation of this kind, the digging should be started on the high side and worked down to level.

If there is a steep slope, the job should be worked with one ramp and that should be located on the lower side. There is, of course, no need for a ramp at all until the floor has been cut and leveled to the low side grade. In carrying out this work the tractor shovel is used as a bulldozer except for working back into the slope, as you would in a regular cut or excavation. It often is advantageous to work across the slope, depending on the pitch and the size of the excavation. If material is placed in thin layers, each pass over the area will add that much more compaction to the soil.

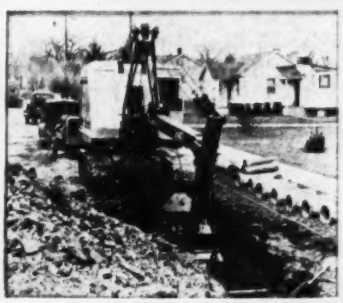


GarWood 75

A New 3/4 yd. Shovel with Many Exclusive Features!

Gar Wood has designed the *new* "75 series" shovels to combine many new and exclusive operating features with time-tested standards of advanced design and rugged construction . . . Both the standard-duty 75A and the heavy-duty 75B have *power actuated mechanical drum clutches, right angle drive, independent chain crowd, power steering, independent travel, conical hook rollers* to eliminate rocking and an optional *hydraulic coupling* to absorb shock loads . . . Easy field conversion for crane, clam, dragline, magnet, pile driver or trench hoe work . . . Don't miss checking the profit potentials of the exclusive new Gar Wood Foundation Borer — the machine that bores and bells in one operation . . . See your dealer for details —

EASY CONVERSION IS A FEATURE



Your Gar Wood shovel can be quickly adapted for trench hoe work. Digs up to 17'10" depth, dumps at heights up to 19'3". Standard 40" dipper. 36", 31" and 26" widths optional.

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LARGE CONTRACTOR PRAISES BANTAM® METHOD



ONE OF 3 truck-mounted Schield Bantam Back Hoes, used by Red Eagle Corp., Columbus, Ohio, to speed contracts in 3 states.



INTERCHANGEABLE ATTACHMENTS quickly adapt Bantams for handling wide variety of Red Eagle jobs with one-man machine.

Red Eagle Corp. says, "Bantam handles a wide variety of jobs at substantial savings."

COLUMBUS, OHIO — Red Eagle Corp., who handle all types of heavy construction work *throughout Ohio, Penn., and N. Y.*, find that truck-mounted Schield Bantam shovel-cranes pay off in getting *more jobs done at less cost.* Owner Nick Knezevich reports, "Our 3 Bantams are the *busiest, most economical* machines we own, and on many road and bridge jobs are the *only* cranes required."

Red Eagle operators like Bantam's close-quarter maneuverability and fast mobility between jobs . . . claim Bantam's rapid hoist and swing speeds, with interchangeable Back Hoe, crane boom, dragline and clam buckets, enable them to *outproduce larger, more expensive rigs* on many scattered assignments over 3-state area.

Despite almost constant operation under widely varying job conditions, the cost of maintaining Red Eagle's *three* Bantams during 1952 was 30% less than was required to keep *one* larger machine in operation. Average Bantam repairs for the period amounted to *less than $80 per machine.*

Typical Red Eagle Operations handled by low-cost Bantams

Million-Dollar Highway Job!
In relocating Ohio Route #250 in Harrison County, one Bantam dug 6300′ of trench . . . laid and backfilled *all* pipe, ranging from 12″ to 60″ diameter, at 8′ depth.

3-Span Steel Bridge!
At Johnstown, Ohio, Bantam excavated channel . . . poured concrete abutments and set *all* steel (65,600 lbs.). Bantam also dug *all* trench and placed *all* pipe. Job completed 3 months ahead of schedule!

$109,591 Bridge Contract!
On Ohio Hwy. 725 in Preble County, Bantam dug footings . . . handled channel and structure excavation . . . removed old abutments . . . poured wing walls on box culverts and laid 42″ drain pipe.

SB-E-3



"Why not find out how much you can save with Bantams?"

Your nearby Bantam Distributor will gladly demonstrate Bantam economy on your work, without obligation. Just send post card or letter, for complete information today. Be sure to ask about *new heavy-duty Bantam T-35.* It gives you 6-ton crane capacity, plus many exclusive improvements — including *new remote control* (extra) — for faster, more economical operation.

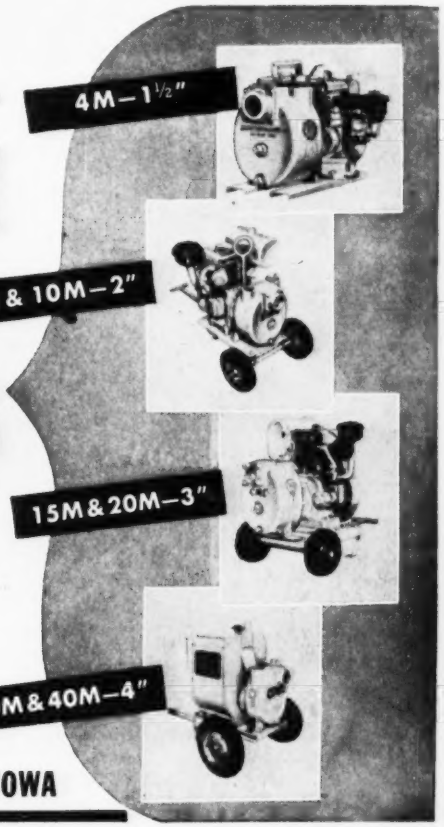
New Bantam T-35 HOE
Sells for less than $6600.00
(Plus truck and mounting charge)
FOB Waverly, Iowa

Includes complete Back Hoe unit, with boom, stick and bucket. Price subject to change without notice.

SCHIELD BANTAM CO., 221 Park St., Waverly, Iowa.
World's largest producer of truck-mounted cranes and excavators

GET FAST DUAL PRIMING–
DEPENDABLE LONG LIFE OPERATION–
and KING SIZE in VALUE!

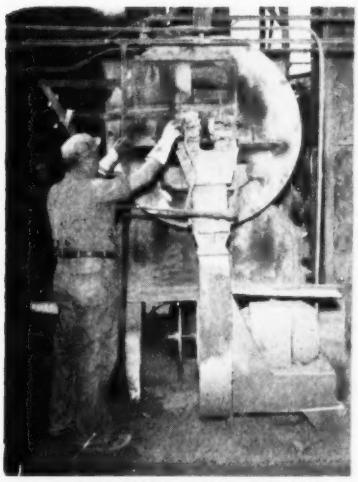
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Completely New Dual Prime Pump Line Featuring

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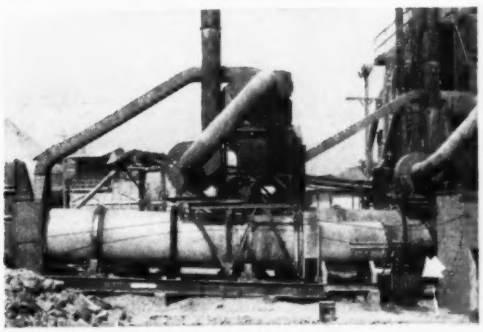
Hopkins Volcanic Oil Dryer Unit at Dunbar Slag Co.

AT THE
DUNBAR
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"HOPKINS UNITS
Give us a DRIER HEAT...
Less Fuel Consumption"

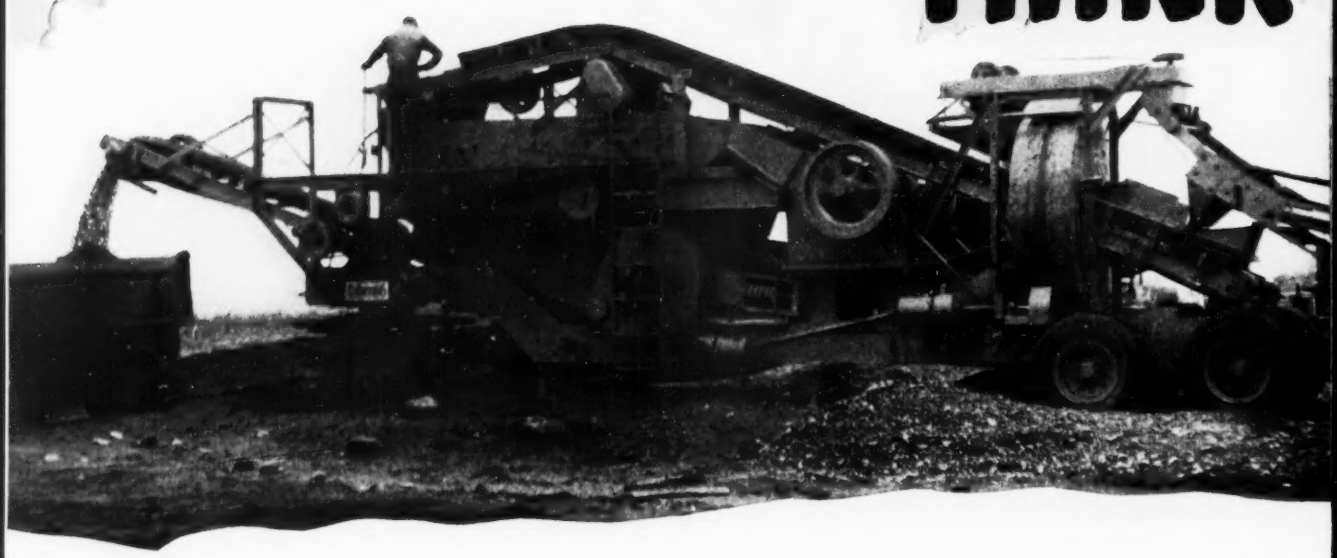
• Shown at the left (below) is a large Tandem Dryer Asphalt Plant, using two Hopkins Volcanic Dryer Units which were installed three years ago. These units replaced old-style steam atomizing burners, which actually added extra moisture, thereby presenting additional problems. Mr. Karl Dunbar says, "We now get a much better drying job than before. Hopkins units give us a drier heat... less fuel consumption, and better temperature control."

Other contractors, too, have reported excellent results with Hopkins units–have found that Hopkins equipment steps up production, provides greater efficiency, and reduces fuel cost. Why not get these cost-cutting, time-saving features for *your* asphalt plant? A letter or phone call will bring you descriptive literature and complete details.



HOPKINS VOLCANIC SPECIALTIES, INC.
ALLIANCE, OHIO

THINK BIG... to meet THINK

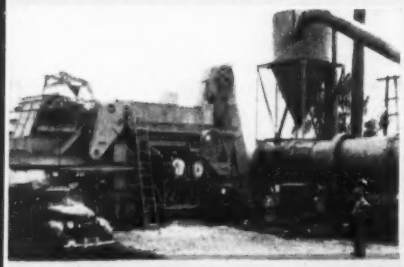


ANOTHER Cedarapids PRODUCT

THIS CEDARAPIDS COMMANDER PLANT

is doing a whale of a job for Schultz and Lindsay Construction Company on tough crushing and screening jobs in North Dakota. It's no wonder they're enthusiastic about Commander performance. They say they especially like the design ratio of the jaw and roll crushers, screen and conveyors. They also like the high screening capacity and the extreme portability of this compact unit.

THINK CEDARAPIDS . . *when you think of bituminous mixing*

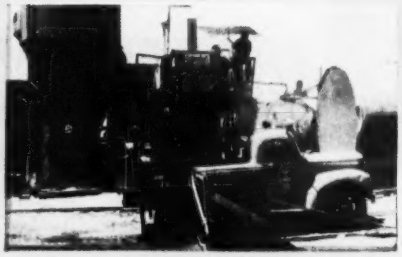


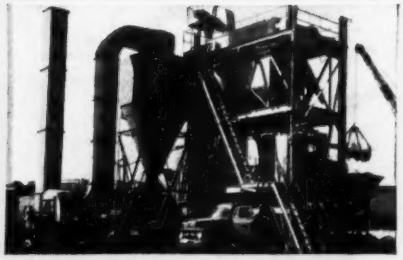
MODEL FA

The most portable batch type bituminous mixer in the Cedarapids line. The FA can be set up for operation in a matter of hours. Centralized controls insure fast, easy, one-man operation. Balanced coordination of every part produces up to 800 tons per day of accurately weighed and uniformly mixed aggregates and bitumen. Quality-built for long-term service at lowest cost.

MASTER PLANT

This two unit continuous-mix plant combines the Cedarapids Master Mixer and Gradation Control Unit to supply specification mix in big volume. The mixing unit is offered with either a twin shaft mixer which conforms to all existing specifications, or a single shaft mixer designed for high speed, vigorous mixing.





MODEL E

Two tons at a batch is average production for this Cedarapids Bituminous Mixing Plant. All-electric operation plus automatic time controls, signal lights and air controls insure absolute accuracy of mix and profitable production for low-bidding contractors.

increasing demands for aggregate

CEDARAPIDS...

FOR BIG-VOLUME PRODUCTION *LIKE THIS*—

WITH the Cedarapids Commander on your job, you can *Think Big* in terms of exceptionally high tonnage output to meet today's increasing aggregate requirements. If you are a producer who needs greater output of fine-crushed products, or if your pit conditions put a bigger load on the secondary crusher, the Cedarapids Commander is designed specifically for you!

The sizes of the crushing units, screen and conveyors are accurately balanced for maximum production. The big 30″ x 22″ Roll Crusher steps up secondary crushing capacity to produce greater quantities of smaller size aggregates. The big screening capacity of the 48″ x 10′ Horizontal Vibrating Screen accurately balances the high percentages of secondary crushing. Conveyors are 30″ wide to handle the high hourly output. *And the Commander's operating and maintenance costs remain as low as on other Cedarapids Plants!*

Talk to enthusiastic Commander owners . . . watch a Commander in operation . . . your Cedarapids distributor can tell you where there's one working near you, and give you complete details of all the reasons why you'll command the field with a Cedarapids Commander.

420 TONS PER HOUR

on a job crushing ⅞″ minus wet material containing 19% clay, with 15 to 20% crushing, was average production for this Cedarapids Commander Plant owned by Schultz and Lindsay Construction Company of Fargo, North Dakota.

300 TONS PER HOUR

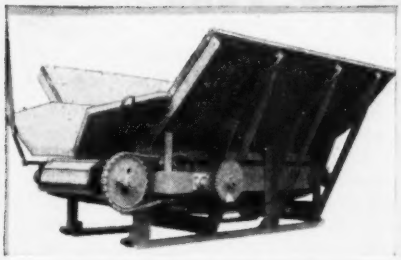
on ¾″ material, with a heavy crush of 40 to 50%, was the Commander's production average on Schultz and Lindsay's crushing job at Garder, N. D.

440 TONS PER HOUR!

Schultz and Lindsay's Commander Plant consistently averages this tonnage on lighter crushing jobs where all conditions are favorable.

IOWA MANUFACTURING COMPANY

Cedar Rapids, Iowa, U. S. A.

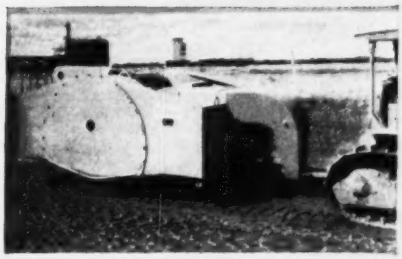


CEDARAPIDS FEEDERS

Cedarapids Apron Type or Reciprocating Feeders control the feed, prevent choking and provide a smooth, workable flow of material to crushers, conveyors and bucket elevators, eliminating overloads and surges. Available in a wide variety of sizes for all types of aggregate or bituminous mixing plants.

VIBRATORY SOIL COMPACTORS

Here's the way to get maximum compaction on highway subgrades and bases, airport runways, or any soil and graded aggregate construction. Cedarapids Vibratory Compactors, operating on an entirely new principle, provide an impact-compacting action that reaches, and often exceeds, specified densities in one or two coverages, with less labor and lower costs.





MOTORIZED HEAD PULLEYS

Here's a money-saving departure from conventional conveyor drives. With Motorized Head Pulleys, *everything* is contained inside the drum, completely protected from grit, dirt and weather, with no outside parts or motors to service. 70% to 90% of conveyor trouble and downtime eliminated when you convert your belt conveyor or belt-bucket elevator installations to *motorized* efficiency!

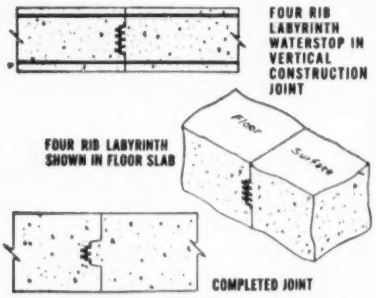
just nail 'em in...
pour your concrete



AND FORGET ABOUT SEEPAGE
WITH LABYRINTH
WATERSTOPS

● Concrete shrinkage *can't* cause leakage between pours when you're protected by ribbed and grooved polyvinyl plastic Labyrinth Waterstops in the joints. Economical? You bet . . . No special forms, no metal fins to bend or tear . . . no maintenance cost, AND . . .

INSTALLATION COST IS VIRTUALLY ZERO!



WATER SEALS, *inc.*
9 SOUTH CLINTON STREET
CHICAGO 6, ILLINOIS

For Further Information and Sample—Clip the Coupon!
Patent applied for

WATER SEALS, INC.,
9 South Clinton St., Chicago 6, Illinois
Send full information and sample.

Name_____
Company_____
Address_____
City_____ Zone____ State_____



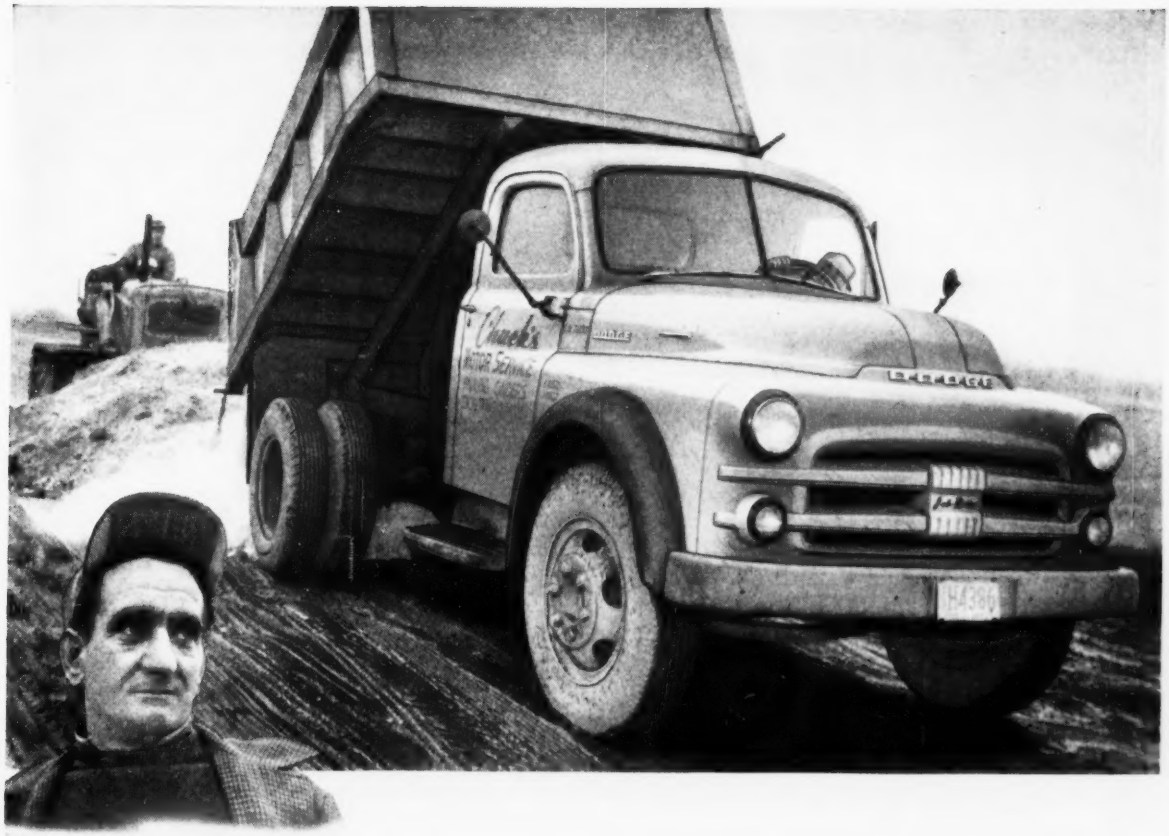
HERE'S A NEW 45-ton trailer-mounted crane, produced jointly by Osgood-General and Talbert Construction Equipment Co. that is claimed to be legal on highways.

Low-Boy Trailer Crane Will Job Lift 45 Tons

FOR SOME TIME the Talbert Construction Equipment Co., Lyons, Ill., and The Osgood-General Companies, Marion, Ohio, have been working together on the adaptation of mobile crane rigs. Talbert enjoys the unusual distinction of being not only a distributor for Osgood, but also a manufacturer. This close association between distributor - manufacturer and manufacturer has resulted in a new 45-ton trailer-mounted crane that both claim is legal on most highways. Certainly, if this is true, it gives promise of filling a much needed gap in construction equipment.

Both Talbert and Osgood have realized for some time that one of the big needs in the construction field was a large, rapid transit material handler or crane that would meet highway load restrictions in the various states, with or without a special permit. Up to the present time, big cranes had to be disas-

(Continued on page 128)



"Our Dodge trucks just go and go!"

. . . says **CHARLES BENDA**, *Owner, Chuck's Excavation Service, Chicago, Ill.*

"Contract hauling and excavation work can be rough work sometimes. You never know from one day to another what your next job will be like. That's why I need trucks that can handle any kind of job that may come up. And Dodge is my choice down the line!

"That Dodge power is as steady as a mule. It has the ability to pull full loads out of deep basement excavations, and the dependability to keep coming back for more. My Dodge trucks are plenty economical, too. I haven't found any other make that can come close to Dodge for good gasoline mileage!"

Why new DODGE *"Job-Rated"* TRUCKS are a better buy for Construction Men

HIGH-POWERED FOR HEAVY HAULS!

Dodge gives you the might and muscle to move those big loads *in a hurry!* Seven hefty power plants, three brand-new—from 100 h.p. to 171 h.p. It's real economical power, too. High compression ratios, 4-ring pistons, chrome-plated top rings and a host of other features combine to help keep your gas and oil expense at rock-bottom levels. And extra-powerful dual primary brakes, in 1- through 4-ton models, assure safer stops with less pedal pressure!

BIG PAYLOADS FOR BIGGER PROFITS!

With a Dodge *"Job-Rated"* truck, you can haul man-sized loads on a small-sized budget! New, bigger load capacities on many models enable you to carry more money-making payload every time out. Moreover, those rugged Dodge frames, sturdy axles and extra-strong springs are built to withstand toughest use for years without breakdown. See your Dodge dealer for the full story on Dodge extra value. He's making mighty good deals right now.

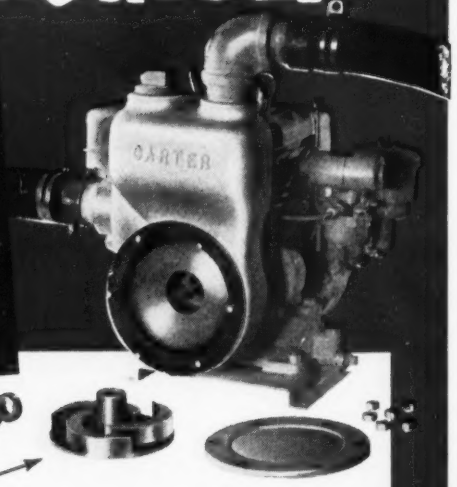
DODGE

"Job-Rated" TRUCKS

Here's the New

HUMDINGER

SIMPLEST, MOST PRACTICAL Self-Priming Centrifugal Ever Built



ONLY TWO BASIC PARTS . . . the impeller and the seal, that's all you'll find inside the new Humdinger. Here's an advanced new pump design that eliminates all non-essential, non-pumping parts . . . resulting in the greatest possible simplicity of action and a remarkably efficient pump performance.

A NEW PRINCIPLE OF IMPELLER ADJUSTMENT . . . maintains peak efficiency for the entire life of the pump *without shims, wear plates, or replacement parts of any kind.* This simple adjustment completely compensates for impeller wear quickly and easily . . . without removing impeller, without disconnecting suction or discharge hoses, without dismantling the pump.

A NEW IDEA IN VOLUTE DESIGN . . . Twin-Coaxial Volute Passages, an exclusive Carter development, completely eliminates mechanical valves and priming devices. Here's a lighter more compact pump case that offers greater capacity, more trash handling ability, and the fastest most foolproof priming action ever developed.

Here's a Self-priming Centrifugal that's years ahead. The Humdinger is *really new* . . . completely different . . . engineered to give Contractors the finest pumping equipment available.

COMPLETE RANGE OF SIZES

FREE BULLETIN #5300
fully describes the entire line of new HUMDINGERS
SEND FOR YOUR COPY TODAY

CARTER

RALPH B. CARTER CO.
202 Atlantic St., Hackensack, N. J.

LOW-BOY TRAILER CRANE . . .

Continued from page 126



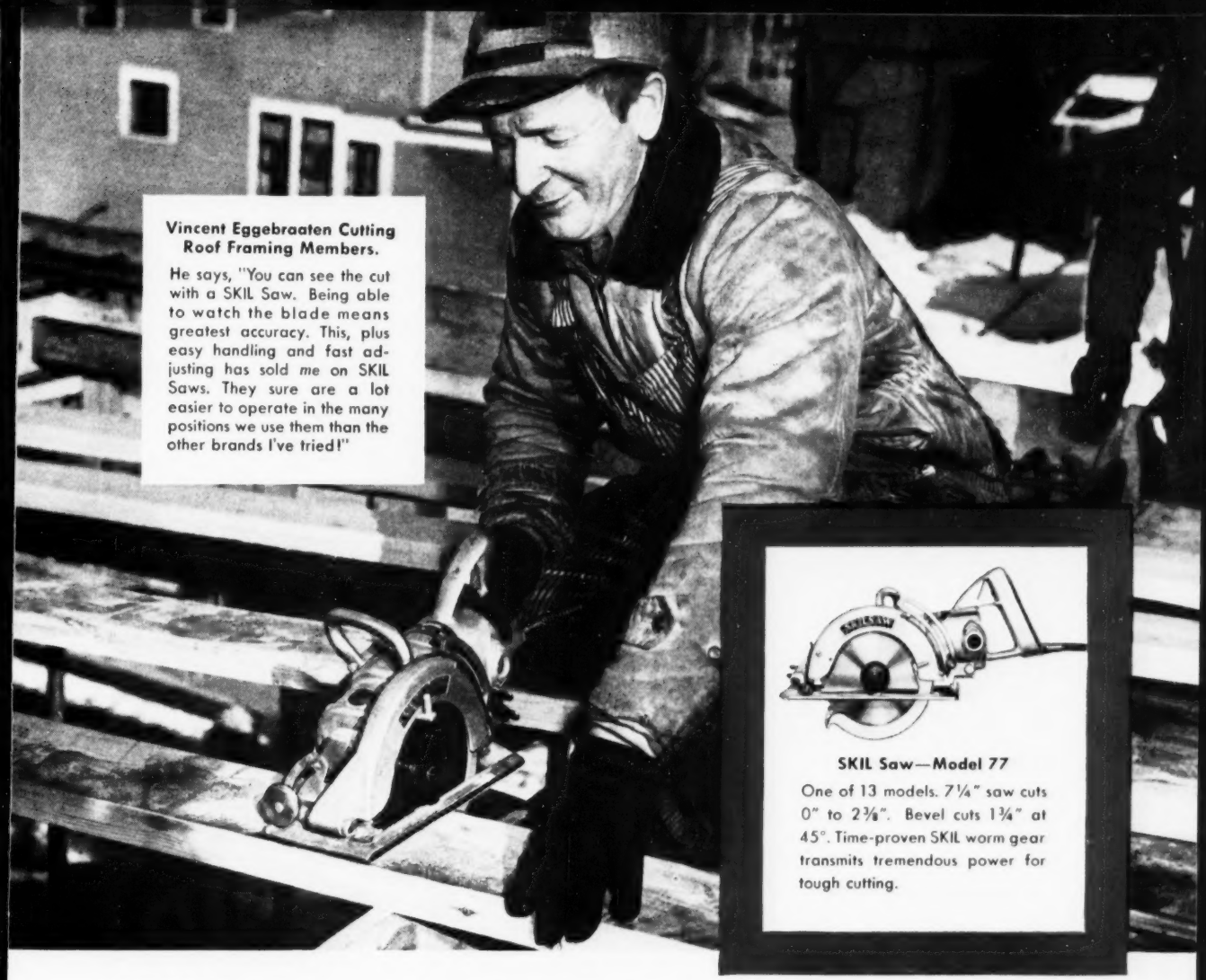
THIS CRANE, equipped with 120-ft boom, plus 40-ft jib, lifted 10,300 lb at 73-ft radius over the side.

sembled, moved by railroad cars and then reassembled on or near the job. In some cases two truck cranes were used. This is objectionable because of job restrictions, area- and dollar-wise. Most crane and trailer manufacturers have been trying to solve this problem by designing and producing a rig strong and large enough to lift or move the loads required and still stay within the weight and width limitation set forth by the various states. Talbert and Osgood with their new model, the Osgood 822T, claim to have solved this problem.

Youthful Austin G. Talbert, president of the Illinois firm and a former hauling contractor, conceived the original idea for the new crane mount about a year ago. He flew over to Marion, Ohio, and held a day-long conference with the Osgood officials and engineers. There it was decided that the 1½-yd rig could be put on a special trailer mount, give greater lifting capacity and meet most state requirements. Osgood liked the idea, agreed to work with Talbert.

Talbert returned to Illinois the same day and started to work out the details. First, he took the Osgood Model 820 1½-yd. superstructure and modified it to reduce the weight so it would fit the trailer

(Continued on page 130)



Vincent Eggebraaten Cutting Roof Framing Members.

He says, "You can see the cut with a SKIL Saw. Being able to watch the blade means greatest accuracy. This, plus easy handling and fast adjusting has sold *me* on SKIL Saws. They sure are a lot easier to operate in the many positions we use them than the other brands I've tried!"

SKIL Saw—Model 77

One of 13 models. 7¼" saw cuts 0" to 2⅜". Bevel cuts 1¾" at 45°. Time-proven SKIL worm gear transmits tremendous power for tough cutting.

"SKIL Saws take more punishment, are easier to handle than any other!..."

says **J. L. Harris,** superintendent,

ADJUSTABLE JOIST CO.,

Foshay Tower, Minneapolis, Minnesota



This firm uses only SKIL Saws in cutting wood forms for concrete on such projects as: Veterans Hospital, Dallas, Texas and Mayo Memorial Medical Center, Minneapolis, Minnesota.

"We have 12 portable power saws, Model 77 SKIL Saws," says superintendent Harris. "The SKIL Saw takes punishment better than any other make. I know, because I've used them all. I have cut as much as 9,000 board feet a day—work that's hard on both tool and operator, but SKIL Saw has ease of handling and performance that makes the job go faster.

"We also prefer SKIL Saws because minimum maintenance is required. Very seldom does one need servicing, and if it does, the nearby SKIL Factory Branch services the tool and gets it back to us in no time!"

SKIL

PORTABLE TOOLS

SKIL Products are made only by SKIL Corporation
formerly SKILSAW, Inc.
5033 Elston Avenue, Chicago 30, Illinois
3601 Dundas Street West, Toronto 9, Ont.
Factory Branches in All Leading Cities

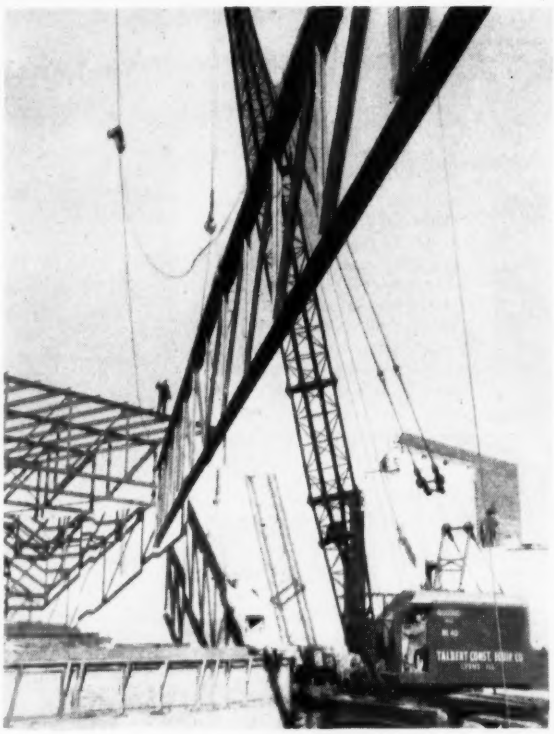
See Your SKIL Distributor for complete information or call your nearest SKIL Factory Branch

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CAPSTAN TYPE, DRUM TYPE AND SPECIAL TYPES
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One man can move hundreds of tons of rolling load with practically no effort. Economical, efficient, Carpullers are available for your specialized requirements.
Write for bulletins and catalogs!
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Puts POWER where you want it . . . at low cost!
"US" Electric Plants have earned their reputation for dependability under all kinds of working conditions. You'll find the *right* unit for your needs in the complete "US" line . . . AC and DC units from 300 watts to 200 kw. *Write for information.*
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mount he had in mind. The major changes involved removing the cast fuel tank and providing special engine mounting and fuel tank; special demountable 8- and 4-ton counterweights which could rapidly be removed for road travel, but once on the job, could be put back just as quickly.

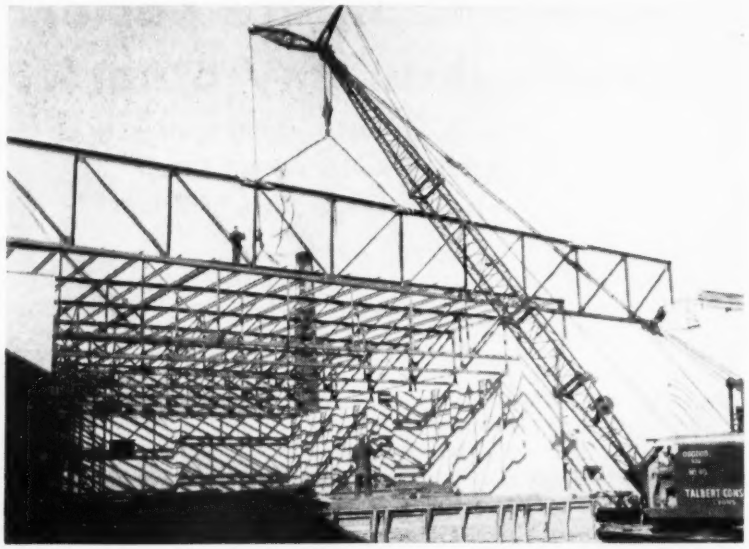
Once this was put on paper and found possible Talbert and his engineers went to work on the trailer mount. The trailer basically is of low-bed variety with a fixed goose-neck attached rigidly to the trailer deck. The goose-neck is designed so it can be attached to any standard truck-tractor through the conventional king pin and fifth wheel.



THIS CRANE, with a 132 ft of boom is lifting a 28-ton steel truss. The manufacturers claim that most booms and jibs can be picked up from a horizontal position by the crane.

To overcome the usual weight objections, Talbert distributed the load over five axles instead of the conventional three offered by most manufacturers. The counterweights were designed so they could be removed by pulling 4 bolts in just under 10 min. They can be remounted in 15 min. The crane boom also is removable so that the unit will conform to weight

(Continued on page 133)



NEW UNIT WAS DESIGNED primarily for heavy-duty rigger or steel erector work. The crane boom and the counterweights are removable to conform to weight limits.



CLAMSHELL LIPS

last much longer

with

AIRCO HARDFACING ALLOYS

The lips of your clamshell buckets can be made to last at least twice as long (sometimes five times as long) — to resist abrasion and withstand impact — by protecting them with the proper Airco Hardfacing Alloy. These alloys can be applied right on the site by your own maintenance crew. Use them to form a hard protective shield on clamshell lips, bucket teeth, grader blades, drills and other equipment.

Whatever your surface wear problem — protecting new equipment or rebuilding worn parts — hardfacing is the answer. There are more than twenty different Airco Hardfacing Alloys designed to prolong equipment life. Contact your local Airco office for further information.

AIRCO

DEALERS AND OFFICES IN MOST PRINCIPAL CITIES

AIR REDUCTION

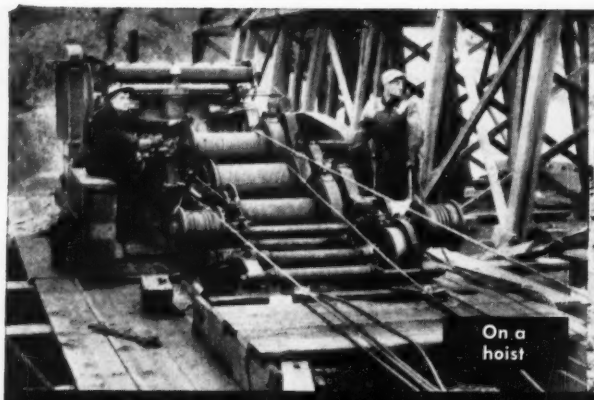
60 East 42nd Street • New York 17, N. Y.

Air Reduction Sales Co. • Air Reduction Magnolia Co. • Air Reduction Pacific Co.
Represented Internationally by Airco Company International

Divisions of Air Reduction Company, Incorporated

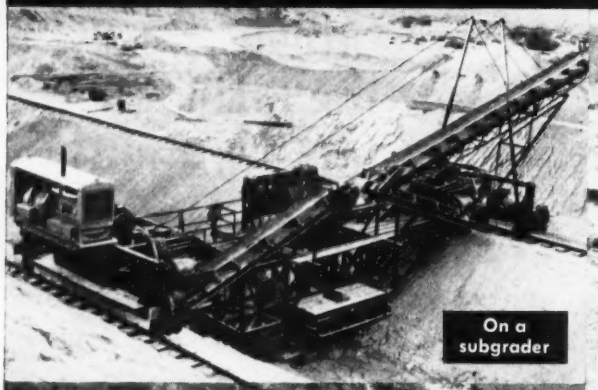
at the frontiers of progress you'll find

AN AIR REDUCTION PRODUCT



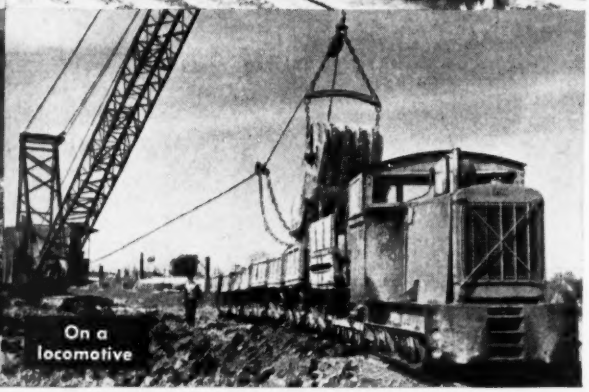


You'll get the most out of your construction equipment with MURPHY DIESEL POWER









MURPHY DIESEL COMPANY

259 **5339 W. Burnham St.** **Milwaukee 14, Wisconsin**

MURPHY DIESEL

Heavy duty power for construction

Murphy Diesel Engines and power units are available in sizes from 90 to 240 H.P. Engine speeds are 1200 and 1400 rpm. Also available are dual-fuel engines and altitude engines which will maintain sea level ratings up to 9000 ft. "Packaged" generating units are available with capacities ranging from 60 to 140 K.W. A.C. or D.C. voltages to suit your requirements.

LOW-BOY TRAILER CRANE . . . Continued from page 130



UNIT HAS FOUR OUTRIGGERS, which when extended give an over-all width of 15 ft. The counterweights can be removed in 10 min by pulling only 4 bolts.

limits. The over-all width, with retractable outriggers is 10 ft. Extending the four outriggers when on the job gives an additional 2½ ft on either side for an over-all width of 15 ft.

According to E. M. Ellis, vice-president of Talbert, the crane mount is available in different sizes and capacities to all owners and manufacturers, and any superstructure can easily be adapted to fit. Talbert also offers to engineer and build the trailer mount for any crane, regardless of age.

The Model 822T was designed primarily for the heavy-duty rigger, or steel erector to work either inside or outside of the structure. The manufacturers claim, however, the machine can travel anywhere a truck-crane or any other similar unit can go because of the ability to apply auxiliary power to the rear axle bogie. In the pilot model, this drive was manufactured by Talbert and was gear-driven. In production models it will be chain-driven.

This is done by using the power of the superstructure down through the vertical travel shaft, much in the same manner as in the conventional Mobilcrane models. This arrangement permits the machine to pull itself by aiding the tractor unit, through soft underfooting and over rough terrain. For highway travel, the power of the superstructure is disconnected, and the unit is pulled over the highway

(Continued on page 134)

Lifting Capacities - Pounds
85% of Tipping Load

Machine standing on firm level ground – with outriggers set									
Radius Ft.	40' Boom	50' Boom	60' Boom	70' Boom	80' Boom	90' Boom	100' Boom	110' Boom	120' Boom
14	90,000								
16 1/2	73,500								
20	55,500	55,000	54,500	54,000	53,500	53,200	52,800		
25	44,000	43,700	43,400	43,000	42,700	42,300	42,000		
30	36,400	36,000	35,700	35,300	35,000	34,700	34,500	34,200	34,000
35	31,000	30,600	30,200	29,800	29,100	28,400	27,700	27,000	26,400
40	26,900	26,500	26,100	25,700	25,000	24,200	23,600	22,900	22,000
45	- - -	23,400	22,900	22,500	21,800	21,000	20,200	19,500	18,700
50	- - -	21,000	20,500	20,000	19,200	18,400	17,700	16,900	16,100
55	- - -	- - -	18,400	18,000	17,200	16,300	15,500	14,600	13,600
60	- - -	- - -	16,600	16,200	15,400	14,500	13,700	12,800	11,900
65	- - -	- - -	- - -	14,800	14,000	13,100	12,200	11,200	10,200
70	- - -	- - -	- - -	13,600	12,700	11,700	10,800	9,900	8,800
75	- - -	- - -	- - -	- - -	11,800	10,800	9,800	8,700	7,660
80	- - -	- - -	- - -	- - -	11,100	10,100	9,100	7,900	6,800
85	- - -	- - -	- - -	- - -	- - -	9,600	8,400	7,200	5,950
90	- - -	- - -	- - -	- - -	- - -	9,100	7,800	6,500	5,100
95	- - -	- - -	- - -	- - -	- - -	- - -	7,500	5,950	4,400
100	- - -	- - -	- - -	- - -	- - -	- - -	7,200	5,500	3,825
105	- - -	- - -	- - -	- - -	- - -	- - -	- - -	5,100	3,200
110	- - -	- - -	- - -	- - -	- - -	- - -	- - -	4,700	2,550
115	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	2,100
120	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	1,700

NOTES: (1) Heavy-lift Counterweight (12 Ton)
(2) Lifting capacities for various combinations of boom and jib available upon request.

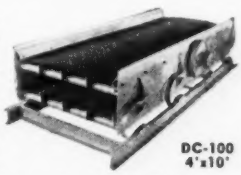
Boosts Portable Crusher Output with KOLMAN Vibrating Screens



J. L. Healy Construction Co., operating throughout South Dakota, finds the KOLMAN Vibrating Screen model DC-100 steps up portable crusher capacities.

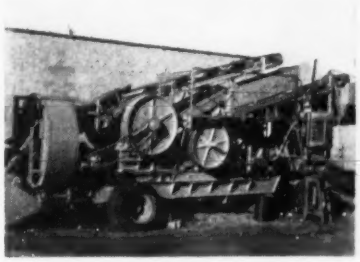
Mr. Healy gives reasons for the improvement. Vigorous action is constant in every portion of the screen, eliminating "dead" areas and giving clear, accurate separations without clogging or blinding. And KOLMAN's "floating action" prevents transmission of vibrations to the rest of the plant, delivers all of the vibrating impact directly to the screen load for maximum efficiency and capacity.

The Healy Company has been a long-time user of KOLMAN screens, using various models in past years for scalping, rejecting, screening clay, and making chips.



DC-100
4'x10'

The nearly flat operating position of KOLMAN screens makes use of the full area of all screening surfaces, while requiring a minimum of space for installation. Their compact design gives a maximum of screening power, even in limited space. Sturdy construction allows continuous operation with minimum upkeep.



The excellent results reported by the Healy Company are echoed by many others who have turned to KOLMAN for crusher screens. They deserve your investigation. Single, double and multi-deck models are available in a wide choice of sizes for screening washed and dry sand and gravel, crushed rock, coal, coke, ore and limestone.

Write for full details in

NEW BULLETIN #109

KOLMAN MANUFACTURING CO.

5900 West 12th St. Sioux Falls, S. D.

at legal speeds as is the case with any low-bed trailer combination.

The rig uses a Continental R-602 gasoline engine with torque converter. Presently it is available in 40-100-ft boom lengths, but tests with a 120-ft boom with a 20-ft jib were satisfactory.

Both manufacturers claim that a good used tractor is satisfactory, but even if a new tractor is desired, the total cost of the entire unit will be well below the cost of conventional truck-mounted cranes of comparable capacity.

Specifications—Trailer-Crane Mount

Weight of complete unit, with tractor and superstructure on crane-mount, 12-ton counterweight basic 40-ft boom and auxiliary driving mechanism in crane-mount ... 116,300 lb

Weight of Unit (without tractor and less demountable counterweight), with 15-ft base section of boom and auxiliary driving mechanism in crane-mount ready for road travel ... 70,120 lb

Weight distribution for highway travel:

Rear of trailer (Double axle—19,665 lb each axle)	39,330 lb
Rear of tractor (Double axle—19,400 lb each axle)	38,800 lb
Front of tractor	10,450 lb
Total tractor	49,250 lb
Weight of truck chassis. . . (Hendrickson)	18,700 lb

DIMENSIONS:

Over-all height with superstructure	13 ft 2 in.
Over-all length, complete with truck-tractor for highway travel	40 ft 3 in.
Over-all width, outriggers retracted, for highway travel	10 ft 0 in.
Over-all width, outriggers extended	15 ft 0 in.
Over-all height, to top of crane-mount	42⅛ in.
Over-all goose-neck height . . . (standard)	65 in.
Length from center of trailer dolly to center of tractor dolly	23 ft 0 in.

REAR AXLE ASSEMBLY:

Tandem assembly, Hendrickson T420. Bogie type, with equalizer beams to give oscillating action when traveling over rough terrain.

AUXILIARY DRIVE MECHANISM

Driven rear axle assembly for trailer-mount. Eaton 42M. Drive is from crane superstructure. Talbert drive.

WHEELS—cast spoke type, highway type tread

Tires—11:00x20 in.x14 ply

Brakes on all wheels, 16½ in.x7 in., air actuated

Osgood Superstructure—Specifications (Condensed)

POWER:

Continental R602 gasoline engine, with Twin Disc Torque Converter, 4⅞ in.x5⅜ in., 602 cu in. displacement, 117 net hp at 1,000 rpm tail shaft speed, no load. (2,000 rpm governed speed).

DIMENSIONS:

Boom lengths available (w/up to 55-ft jib) ... 40—175 ft

Lattice-type boom, 2-piece, with 15-ft base section. Splice, flange- or pin-connected, with point section having 2 or 3 boom point sheaves. Variable length inserts are available, of 5-, 10-, 15-, 20- and 50-ft lengths

CAB:

Width of cab	10 ft 0 in.
Over-all height of cab for traveling (gantry lowered)	13 ft 2 in.
Location of boom hinge pin ahead of center of rotation	4 ft 3 in.
Height of boom hinge pin above grade	6 ft 5 in.
Counterweight clearance above grade	4 ft 9 in.
Rear-end radius over counterweight	12 ft 11 in.

LINE SPEEDS AND PULLS:

Crane, hoist, single line, left- or right-hand drum, 20½ pitch dia lagging	24,800 lb	155 fpm
Swing speed		3.5 rpm
Fuel Tank Capacity		100 gal



FOR 719 days, this Wico Model XHD Magneto operated non-stop on a 40 HP, 900 rpm engine. It had only a short "time-out" when it was transferred to a different engine—but with this single exception, it racked up a record of 17,250 hours of continuous operation.

It's service like this that has earned the Wico XHD its reputation as a heavy duty magneto. Long life is built into every part. The coil has a surge winding of larger wire to absorb the electrical strain and prevent breakdown . . . and it's protected by a solid, molded insulating jacket. Big tungsten contacts, single piece cast rotor and hefty prelubricated bearings are further evidence of design that withstands the roughest service.

To give your engines a hot, lively spark—not just day after day, but month after month—always choose Wico Magnetos. Write to us for full information, or see your nearest Wico Service Station.

WICO ELECTRIC CO.

West Springfield, Massachusetts

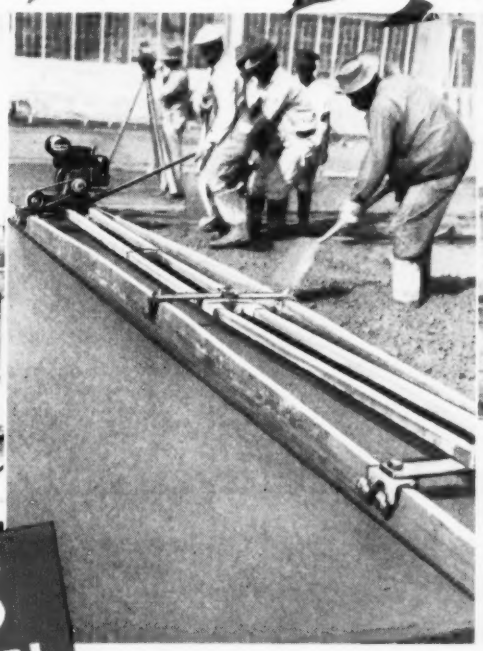
Manufacturers of Wico "Autostop" and "Puff-A-Lite" Automobile Lighter

WICO

MAGNETOS AND DISTRIBUTORS

Whitemans WINNING TEAM!







SCORES ON EVERY JOB!

- ✓ HIGHER EFFICIENCY
- ✓ LOWER COSTS
- ✓ GREATER PROFITS



It's the *modern,* efficient way to lay concrete . . . in a *fraction* of the time. Whiteman Power Buggies, Screeding Machines and Floating-Finishing Machines work together as a perfect team to produce a *better* slab, while *drastically* reducing costs. Send coupon for details *right now!*

PLACING

WHITEMAN POWER BUGGY Fastest, cheapest way to haul and place concrete. Does the work of 6 wheelbarrows. Speeds over light scaffolds, up 25% grades, never tires or slows up. Positive "in-gear" control permits partial or full dumping. Carries 12 cu. ft., weighs only 692 lbs. Travels up to 16 mph. 7.5 hpair-cooled engine. Priced to quickly pay for itself.

SCREEDING

WHITEMAN SCREEDING MACHINES Puddle and vibrate the concrete throughout entire depth and area, thoroughly compact slab, bring moisture to surface and screed slab to a perfect level. Heavier aggregates do not settle, producing better slab. New, more powerful models RS-11 and 52-15 have telescopic frames adjustable 3′ to 15′ wide . . . adaptable to any job.

FLOATING-FINISHING

WHITEMAN FLOATING-FINISHING MACHINES Produce a perfect, smooth, level surface in record time. Does work of 5 men with hand trowels. "Snapon" float trowels compact slab, drive out air, bring up moisture. For finishing, float trowels are quickly removed and tool-steel finish trowels used. Trowel pitch is adjustable while in operation.

Whiteman

THE LEADER IN CONCRETE EQUIPMENT

WHITEMAN MFG. CO., DEPT. C
3249 Casitas Ave., Los Angeles 39, Calif.

Please send prices, literature and name of distributor for ___Power Buggy ___Screeding Machines ___Floating Finishing Machines.

Name _____

Firm _____

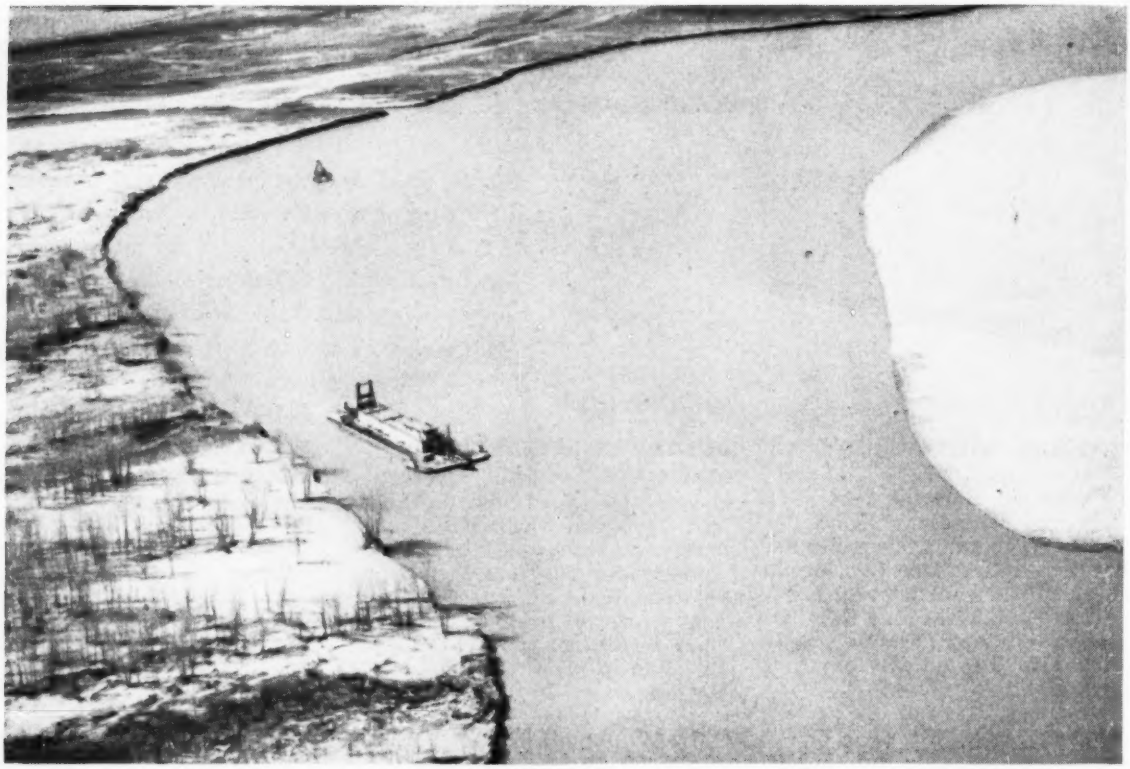
Address _____

City _____ Zone ____ State _____



ALL BUOYED UP and ready to go, dredge *Western Chief* shoves off from Ft. Randall for tough trip down the Missouri to Gavins Point. To reduce draft from 9 to 5½ ft, 138 tons of appurtenances, including cutter head, were stripped from dredge, 38 pipeline pontoons were welded to each side of hull, and barges were welded to stem and stern. Stripped dredge still weighed 1,500 tons.

Big Dredge Bulls Its Way...



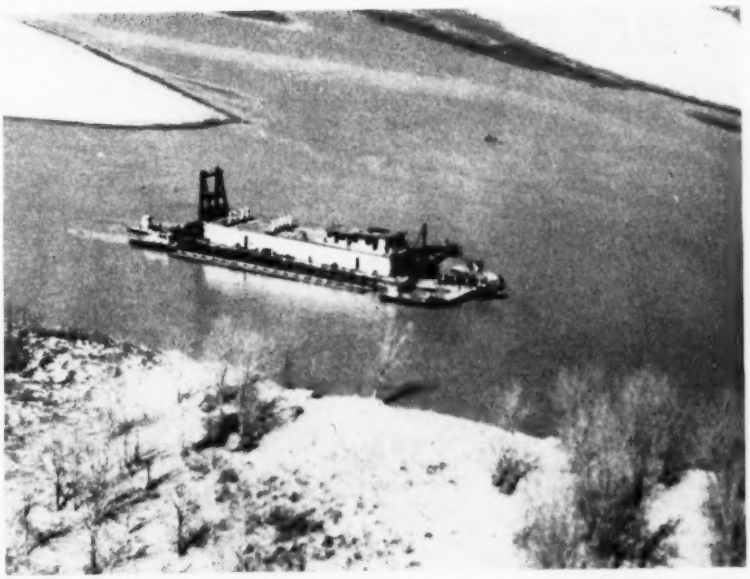
EVEN WITH REDUCED DRAFT, dredge hung up in shallow stretches of river, such as shown here. Then two 6½-ton anchors were carried ahead by derrick scow as deadmen for dredge winch lines. Big rig was literally wiggled through sand bars.

...Down the Big Muddy

(Pictures from Omaha District, U. S. Corps of Engineers)

BIGGEST CRAFT in years, perhaps ever, to navigate the Missouri River through lower South Dakota is Western Contracting Corporation's dredge *Western Chief*. Western moved the big rig from its birthplace at Ft. Randall Dam (CM&E, Nov. '51, p 54) to a new job at Gavins Point Dam, some 60 river mi downstream, but it took 12 days of bulling and slugging through sand bars to do it. The pictures tell the story.

Western Contracting Corp., Sioux City, Iowa, is associated with J. A. Jones Construction Co., Charlotte, N. C., and Massman Construction Co., Kansas City, on a 17½-million-dollar contract for placing second-stage earth fill in the Gavins Point Dam, just above Yankton, S. D. Both Gavins Point and Ft. Randall Dams are being built under the direction of the U. S. Corps of Engineers, Omaha District.



IN THE CLEAR and headed for home *Western Chief* makes knots (well, at least part of a knot) towed by flotilla of six tug boats with total rating of 1,045 hp. Sixty-mile river trip took 12 days.

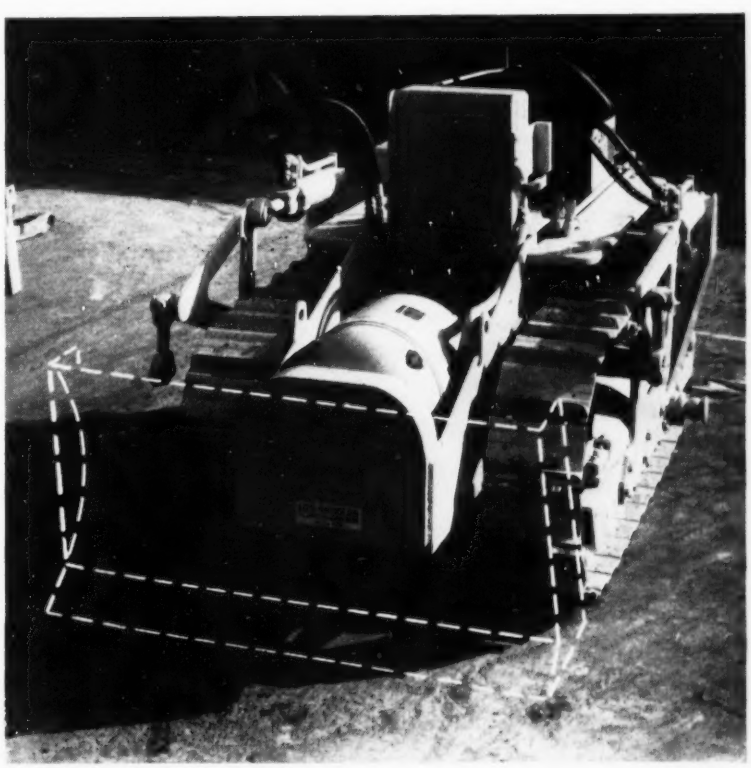
Where's the Exhaust Pipe?

EVER SEE a "Cat" without an exhaust? Here's one! It's a standard D4 model, but instead of the conventional diesel engine, it has for power a General Electric Tri-Clad 40-hp motor.

Reason for the conversion was that Ukropina, Polich & Kral of Los Angeles, Calif., subcontractors on the United-Bell Tunnel job near Moses Lake, Wash., discovered state statutes forbidding the use of diesel engines underground. And they needed their diesel-equipped bulldozer machine for finishing work.

The contractors took their problem to Shepherd Tractor & Equipment Co., Los Angeles, Calif., who recommended installation of an electric motor which was completed in less than 8 hr, using exactly the same bolting dimensions on the frame. No fabrication whatsoever was needed to make the changeover. The tractor was counterweighted so the weight distribution would be the same as on the original machine.

The 40-hp, 900-rpm motor drives the regular transmission with 4 speeds forward and one reverse. It has push-button controls. It operates on 220/440 v, supplied by a trailing cable from outside the tunnel shaft.



INSTALLING AN ELECTRIC MOTOR in place of regular tractor engine has been done before, but here's the latest version. It was used on a tunnel job near Moses Lake, Wash. The dotted lines show where bulldozer blade was attached.

Dozens of Uses • Thousands of Users

Prove Ability, Versatility of the Model D



40 Brake hp. • 8,800 lb. (bare)
Four speeds forward to 25.6 mph., reverse to 3.3 mph.

The thousands of satisfied owners are still finding new uses for the able and versatile Allis-Chalmers Model D Grader. It has proved again and again that it has the power and capacity to do outstanding work on both construction and maintenance.

Usefulness of the Model D is multiplied by several easily mounted attachments: hydraulically controlled rear-end loader, shoulder maintainer that is interchangeable with the loader, scarifier, both V-type and blade snowplows.

MORE POWER, NEW FEATURES, LOW COST

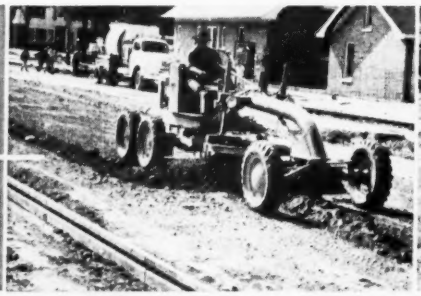
For even greater performance ability, power for the Model D has been boosted to 40 brake hp. Also, leaning front wheels and power circle turn now are available (optional). With these and other big-grader features such as tandem drive, ROLL-AWAY Moldboard, tubular frame and hydraulic blade lift — the Model D's original cost still is but one-third that of a large grader. Operating costs are low, too.

Your Allis-Chalmers dealer will be glad to demonstrate what the versatile, economical Model D can do for you.

ROLL-AWAY is an Allis-Chalmers trademark.

ALLIS-CHALMERS
TRACTOR DIVISION — MILWAUKEE 1, U. S. A.

...for contractors



Finish grades between forms on road and street construction.



Levels for home building, parking lots, play areas, etc.



Terraces, builds diversion ditches, does miscellaneous grader work.



Loads sand, gravel, dirt, any material, with ⅝-yd. bucket.



Rough grades, spreads and cleans up on street or road construction.



Landscapes, grades lawns, slopes, ditches around housing projects.

...for county and state highway departments



Scarifies with plenty of down pressure, accurate hydraulic control.



Mixes thoroughly, with rolling action of ROLL-AWAY moldboard.



Cuts and cleans ditches, slopes banks, grades shoulders.



Reshapes and maintains shoulders with rear-mounted attachment.



Loads sand, dirt, snow—any material — to trucks.



Keeps roads in shape the year-round — clears snow in winter.

...for cities towns and townships



Maintains streets and alleys, park drives, playgrounds.



Handles light construction on streets, roadways, etc.



Backfills ditches, packs and levels ground, loads excess dirt to trucks.



Removes weeds from street sides and alleys, loads or hauls away.



Windrows snow with blade, or plows with V or blade plow.



Loads snow from gutters, maintains stockpiles, handles bulk materials.

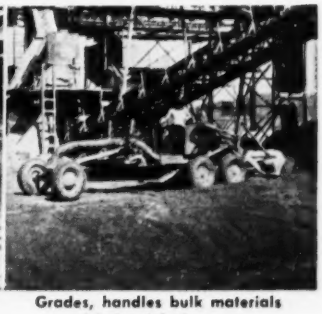
...and others



Builds and maintains access roads for quarries, cemeteries, etc.



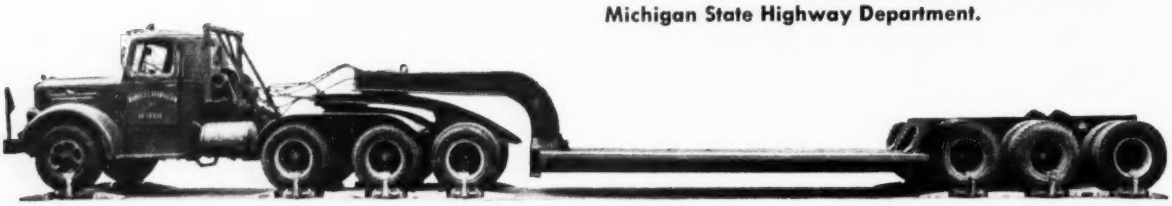
Clears and loads snow at quarries, storage yards, parking areas.



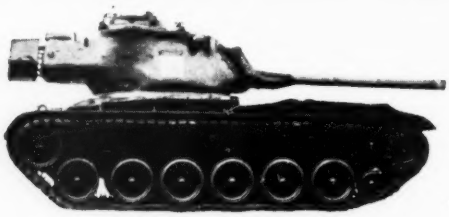
Grades, handles bulk materials around industrial plants.

Here is Proof of LOAD DISTRIBUTION

The figures given in this ad were scaled at the Centerline Tank Plant, Detroit, Michigan by representatives of the Weightmasters Division of the Michigan State Highway Department.

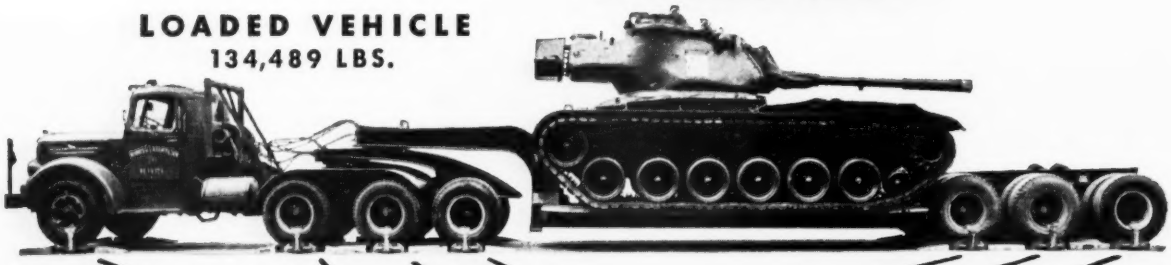


EMPTY VEHICLE
41,340 LBS.



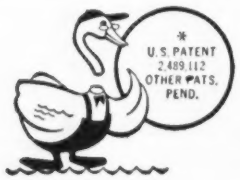
WEIGHT OF LOAD
93,149 LBS.

LOADED VEHICLE
134,489 LBS.



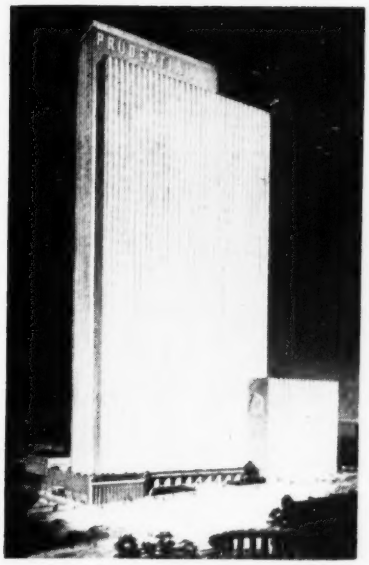
AXLE NO. / AXLE WEIGHT—LBS.	1	2	3	4	5	6	7	TOTAL WEIGHT
EMPTY VEHICLE	81% 8220	37% 7660	36% 7440	24% 4920	22% 4420	20% 4450	20% 4230	30% 41,340
WEIGHT OF LOAD	19% 1820	63% 13100	64% 13040	76% 15270	78% 15870	80% 16909	80% 17140	70% 93,149
LOADED VEHICLE	10040	20760	20480	20190	20290	21359	21370	134,489
TIRE SIZE	10:00	10:00	10:00	10:00	11:00	11:00	11:00	
NO. TIRES	2	4	4	4	4	4	4	26
TOTAL TIRE WIDTH	20	40	40	40	44	44	44	

AXLE SPACING	1 to 2 11 ft. 6 in.	2 to 3 4 ft. 6 in.	3 to 4 4 ft. 0 in.	4 to 5 25 ft. 1 in.	5 to 6 4 ft. 1 in.	6 to 7 4 ft. 3 in.	FIRST TO LAST 53 ft. 7 in.



THE TALBERT CONSTRUCTION EQUIPMENT CO., of Lyons, Illinois manufactures a complete line of low-bed trailers and dump semi-trailers

THE TALBERT-WAY IS THE EASY WAY



HERE'S HOW the 42-story Prudential Building in Chicago will look when finished.



LOOKING NORTH, this gives an over-all view at the start of one of the caissons. Note wood lagging, steel rings and buckets.

42-Story Building Straddles R.R. Tracks on . . .



250 CONCRETE CAISSONS, 4 to 11 ft in dia and averaging 110 ft in depth, were constructed to straddle railroad yards and station giving 25-ft clearances for trains.

By JOHN P. DRANEY, Jr.
Project Engineer, Naess and Murphy
Architects-Engineers

THE NEW 42-story Prudential Building, being erected in Chicago on the site of the original Lake Michigan shore line near Randolph St, sets a pattern which will in all probability be followed by considerable more construction activity in the next few years. Being constructed on reclaimed land which has not been used before because of complications arising from railroad rights-of-way, the giant building will be supported on 250 concrete caissons to rock, spanning the Illinois Central Suburban Station and the Illinois Central and Michigan Central Freight Yards at Randolph St.

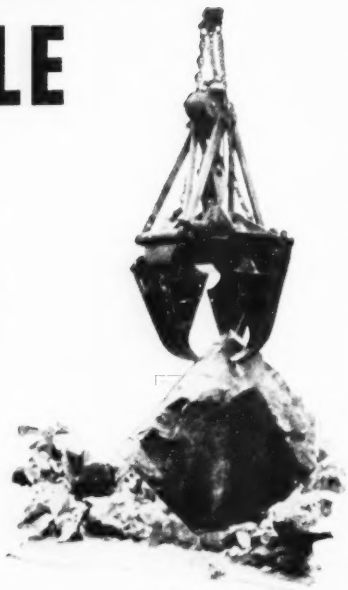
Construction has been substantially completed on these caissons to track level, and steel columns will carry the building some 25 ft above, allowing for train clearances.

The caissons range from 4 to 11 ft in dia and average 110 ft in depth to solid rock and are reinforced for about half their length. Most of the caissons had to be sunk through a 20-ft water-bearing sand

. . . 250 Concrete Caissons 110 Ft in Depth

OWEN

THE GRAPPLE WITH THE GRIP for GREATER GRABS











To *grab* and to *hold* safely is the function of a grapple.

The Owen Grapple *alone* has independently acting tines each of which contacts the object to be lifted, regardless of its shape, and grips it with heretofore unknown tenacity. These photos tell the story.

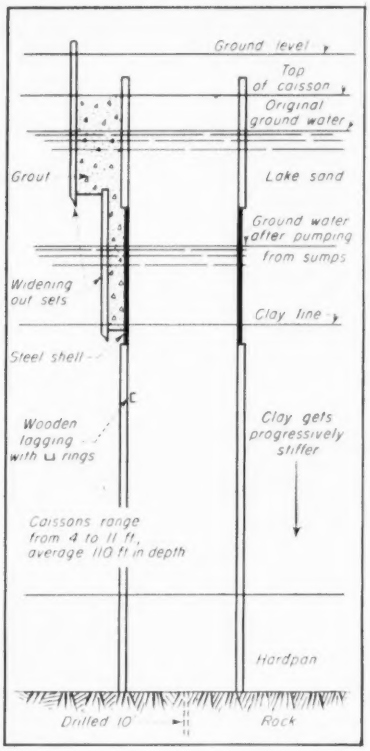
The Owen Grapple opens *wide* to grasp *large* objects. Fast, safe operation is assured indefinitely because of the tremendous grip, scientific design and the use of the best materials available.

THE OWEN BUCKET CO.

6020 BREAKWATER AVE., CLEVELAND, OHIO

Branches: New York • Philadelphia • Chicago • Berkeley, Calif. • Fort Lauderdale, Fla.

BUILDING STRADDLES TRACKS . . .
Continued



CROSS-SECTION shows how caissons were sealed from water infiltration.

layer into clay, and then through progressively stiffer clay, to hardpan and finally to rock. The clay and hardpan had a considerable water content but, being impervious, this strata presented no particular problem.

However, the sand fill overlaying the clay had a 15-ft freely flowing water head, and the operation was further hampered by the presence of old timber trestles and piling used in railroad operations over a 100-yr span. These were generally of oak, and all were in excellent condition because of continued immersion.

After some experimentation, a pattern was finally established in the digging which has been used successfully in all the holes to date. First, four large sumps, similar to the actual caissons, were dug to clay, and continuous pumping from these holes reduced the water head to about 6 ft.

Each caisson was then started by driving an outer shell of wood lagging, 2 ft larger in diameter than the caisson size, for about 14 ft, excavating proceeding as the lagging was driven.

(Continued on page 146)

If ever a truck was designed with the driver in mind...

this new Ford Truck is it! New "DRIVERIZED" Cab cuts driver fatigue. New easy handling saves work and time getting around in tight spots. These and many other TIME-SAVING features in the all-new Ford Trucks help get jobs done fast.

Time is money! Today's truck owners know it. Ford Truck engineers know it. That's why TIME-SAVING was a major goal in designing the completely new Ford Trucks for 1953. With scores of new TIME-SAVING features, the new Ford Trucks are made-to-order for your work.

New "DRIVERIZED" Cabs provide living room comfort, cut driver fatigue. They help save time by making driving easier and more efficient in many ways:

Better visibility for instance. Although the new curved one-piece windshield is the most obvious improvement, bigger windows at the sides plus a 4-ft.-wide window at the rear, offer an amazing increase in all-around visibility.

The new Ford Truck seat is something special. Wider, of course. Non-sag seat springs. Adjustable seat cushion *and* separate adjustable back-rest. Most interesting new Ford exclusive feature is that every seat now has a built-in *shock snubber* to help level out the ride.

For easier maneuvering in tight quarters, or in loading and unloading, turning diameter has been considerably reduced. This was done by "setting back" the front axle, widening the front tread, and by improving the steering geometry.



NEW "DRIVERIZED" CABS cut driver fatigue. Both Standard and Deluxe Cab (shown) have new curved one-piece windshield, 55% bigger; new wider adjustable seat; new seat *shock snubber;* new push-button door handles.



New F-900 BIG JOB has G.V.W. rating of 27,000 lbs. for extra heavy hauling work. LOW FRICTION 155-h.p. *Cargo King V-8* offers high sustained torque to give you more performance flexibility for your heaviest loads.

Synchro-Silent type transmissions are now standard on all of the new truck models and at no extra cost. This means faster shifting without double clutching and less truck momentum lost.

New LOW-FRICTION design reduces piston travel, cuts down friction "power waste." You get more useable power... *on regular gas.* The 145-h.p. overhead-valve Cargo King V-8 has more power per cubic inch than any engine in its class. The 155-h.p. overhead-valve Cargo King V-8 is the most powerful Ford Truck engine ever built.

And only Ford gives you a choice of V-8 or Six in five different engines.

New Ford service accessibility saves time in the shop. Front ends have been redesigned. Hoods are wider. Frames are wider, too, permitting a new fender contour that makes engines much easier to get at.

Over 190 models in a greatly expanded line give you many more Ford Trucks to choose from in order to get the one *right* truck for *your* job.

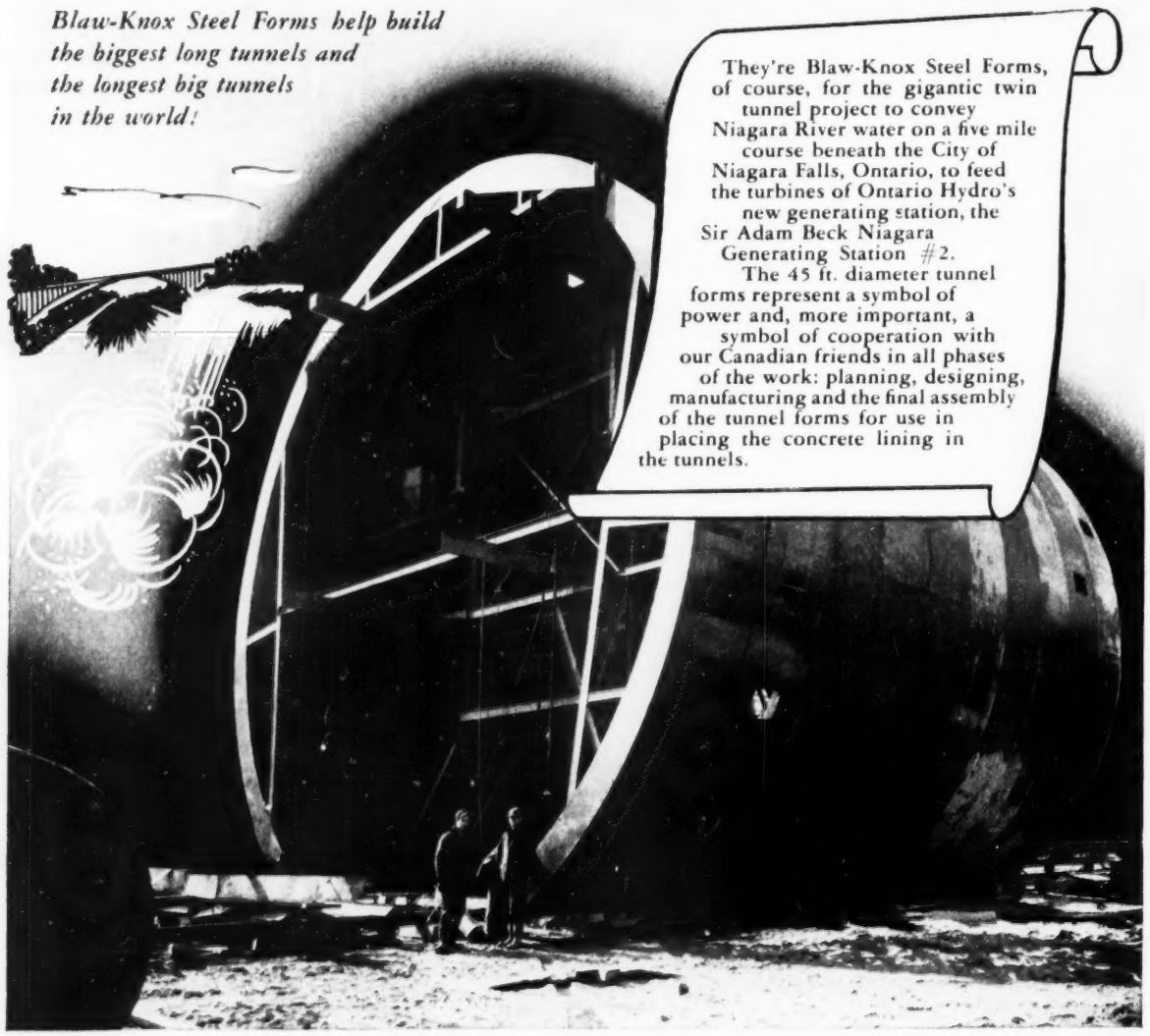
FOR COMPLETE INFORMATION on all or any of the new Ford Trucks, write: FORD Division of FORD MOTOR COMPANY, P.O. Box 658, Dearborn, Michigan. State your work and what type of truck interests you most.

Fifty Years Forward *on the American Road*

FORD *ECONOMY* **TRUCKS**

SAVE TIME! SAVE MONEY! LAST LONGER!

Blaw-Knox Steel Forms help build the biggest long tunnels and the longest big tunnels in the world!



They're Blaw-Knox Steel Forms, of course, for the gigantic twin tunnel project to convey Niagara River water on a five mile course beneath the City of Niagara Falls, Ontario, to feed the turbines of Ontario Hydro's new generating station, the Sir Adam Beck Niagara Generating Station #2.

The 45 ft. diameter tunnel forms represent a symbol of power and, more important, a symbol of cooperation with our Canadian friends in all phases of the work: planning, designing, manufacturing and the final assembly of the tunnel forms for use in placing the concrete lining in the tunnels.

. . . . for every concrete placing job use

BLAW-KNOX STEEL FORMS!

WHATEVER your concreting job . . . big tunnels, dams, bridges, or concrete installations of any kind . . . follow the lead of the builders of the Sir Adam Beck Niagara project. Call in Blaw-Knox engineers for the expert consultation service that assures efficient forming methods and results in close scheduling and fast progress in the concrete placing.

Blaw-Knox engineers, with over 40 years experience in solving tough or unusual concreting problems, get right to the heart of your problem, find the simplest, most economical method of solving it, and recommend the Blaw-Knox Steel Forms best suited for the job.

Get complete details today about the advantages of Blaw-Knox consultation service in the *preliminary* planning stage. Send for Bulletin 2035 today, or if you want detailed information fast, wire or phone.

BLAW-KNOX

BLAW-KNOX COMPANY
BLAW-KNOX EQUIPMENT DIVISION
Farmers Bank Bldg.
PITTSBURGH 22, PA.
Offices in Principal Cities

BLAW-KNOX

How to Plant a Road in a Swamp

Turning soggy, spongy swampland into a stable, lasting roadbed presents a formidable problem . . . until an Ellicott Dredge is put on the job. On a recent New Jersey road project, for example, this 12" Ellicott hydraulic dredge worked in swamps and marshes to remove a total of 250,000 cu. yds. of wet material. Then, it deposited 600,000 cu. yds. of approved fill for the roadbed.

The job report reads: "The project, which required the dredge to be moved overland from one site to another several times, was completed in just eight months!" And to cap this performance, the same unit was moved overland, down the roadbed it had pumped in, to work on an adjacent road job through a cedar swamp!

* * *

If you have a dredging problem, large or small, Ellicott's 67 years of engineering experience can help you solve it. For more information, write for your copy of our Catalog No. 825, which shows over 100 views of Ellicott Dredges and dredging machinery. Address:

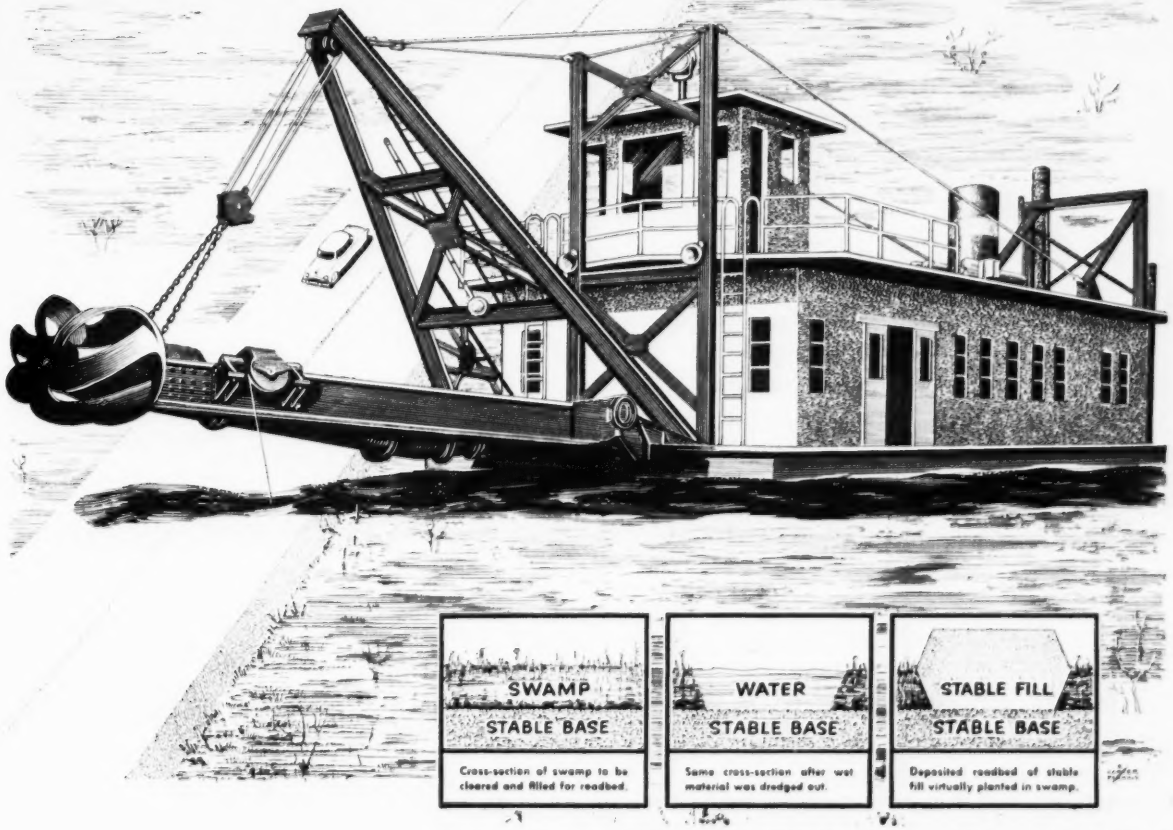
ELLICOTT MACHINE CORPORATION, 1605 Bush St., Baltimore 30, Md.

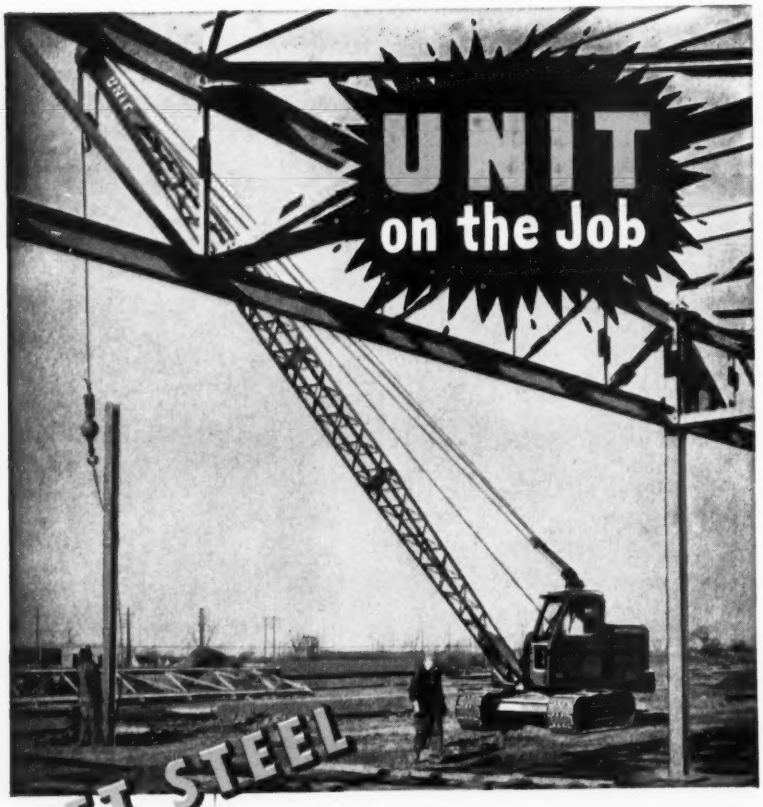
LITTLE DRAGON®—*New, Highly Versatile* PORTABLE DREDGES



Low-cost, standard model, economical solution for small jobs. Deliver 150-250 cu. yds. of solids an hour, pump to 3,000 ft., dredge to depths of 20-26 ft. Ideal for work on canals, lakes, harbors, rivers; for providing fill for swamps, beaches, dams. Write for new Bulletin No. 826.

ELLICOTT DREDGES





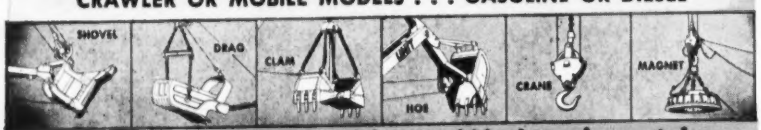
SET STEEL - *Easy and Fast with* **UNIT**

Lifting, carrying and spotting steel girders into the exact position requires STABILITY — FLEXIBILITY and PERFECT CONTROL. A UNIT Crane gives you all these features . . . and more. Extra Long Crawlers — Multiple Hinged Shoes — Wide Axles and Hook Rollers provide perfect stability. Smooth accurate control of boom and hoist lines permits precision handling. UNIT'S FULL VISION CAB gives the operator excellent visibility . . . makes steel setting jobs easier and faster. UNIT equipment can be quickly and easily converted to handle a wide variety of work. To speed up your steel construction, investigate UNIT. Write for literature.

UNIT CRANE & SHOVEL CORPORATION
6305 WEST BURNHAM STREET • MILWAUKEE 14, WISCONSIN, U. S. A.



½ or ¾ YARD EXCAVATORS...CRANES UP TO 20 TONS CAPACITY
CRAWLER OR MOBILE MODELS . . . GASOLINE OR DIESEL



All Models Convertible to ALL Attachments!

BUILDING STRADDLES TRACKS . . .

Continued from page 142

A second set of lagging, 1 ft smaller in diameter, was then started inside the outer ring, and this set was taken some 8 ft to the clay line while excavating proceeded. This stage of the digging necessitated pumping in each hole, and more cutting through old structures. Oak trestle timbers 14 x 14 in. were cut out of almost every hole, and piles were extracted when possible, but generally these, too, had to be cut out a few feet at a time.

When clay was reached, a steel shell, 8 ft in length, caisson size, was dropped inside the lagging and imbedded into the clay by driving 1 to 2 ft. Each steel shell had a 3 in. bleeder-hole and pumping continued inside the shell until a wooden form, caisson size, was installed from the top of the shell to ground level. The bleeder-hole was then capped, and the exterior of the shell and form was immediately grouted to the top.

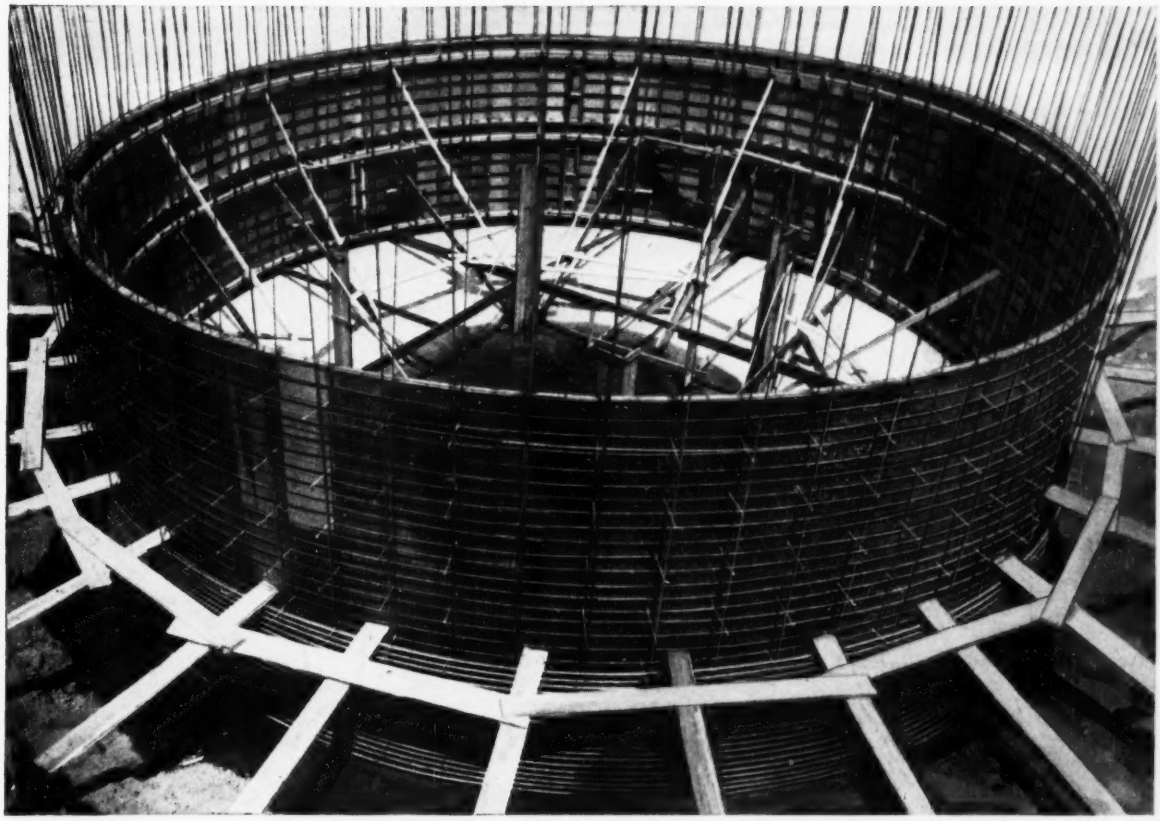
Use Chicago Method

This method effectively sealed the caisson from further water infiltration, and digging proceeded from the clay line to rock by the standard Chicago method. This consisted simply of hand digging into the clay some 5 ft on a carefully controlled diameter, then lagging this section with wooden, radial-cut, tongue-and-groove maple 3 x 6 in., installing two sets of steel rings inside, each set being made in two half-circles of 4-in. channels bent to shape, and these semicircles were bolted together at end lugs. With this in place, digging continued with another 5-ft cut.

No ventilation was required in the hole other than the small amounts of air escaping from the air spaces and hammers. Occasional water-bearing sand seams were encountered, but these seams were successfully sealed by ordinary bagging and clay packing.

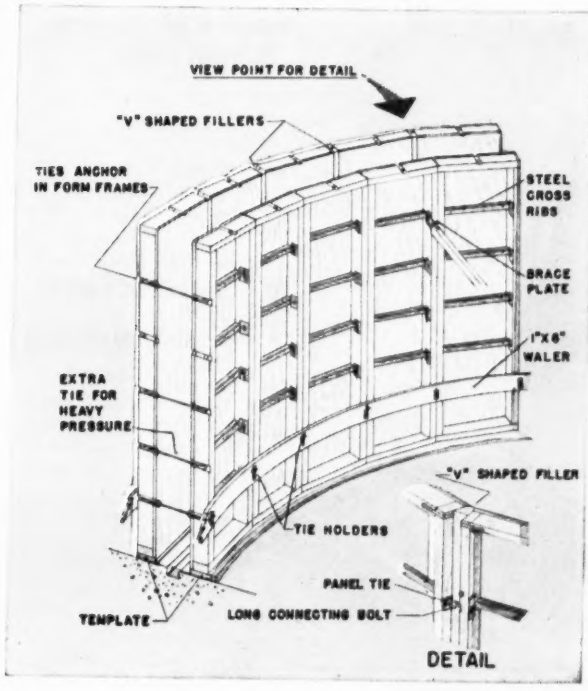
Some water was encountered at the rock level also, and air pumps handled this infiltration until immediately before the concrete pour began.

The George A. Fuller Co., general contractor for the substructure, with superintendent Pete Clark, and consultant Seth Gooder, set up the plan of operation with the aid of the architects and John W. Landwehr, project coordinator for the Prudential Company. Tony O'Malley, caisson superintendent, ably prosecuted the work on a high-speed schedule.



Setting Up Forms for Sewage Disposal Tank, St. Louis County, G. L. Tarlton Co., G. C.

SYMONS FORMS for CURVED WALLS



Symons Rib panels are used with V-shaped fillers at each joint. Sturdy wedge-bolts secure the three pieces together and also hold the ties in place. Curved walers (see photo) or 1" x 6" flat walers (see perspective) may be used for alignment.

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MISSOURI RIVER at Garrison Dam is tamed by rock barrier dumped from downstream side of construction bridge. As rock shows up above water surface, battery of Euclid end-dump trucks rushes in to consolidate cofferdam with finer material. Big job was to keep rock dam level at all times to prevent concentrated flow with resultant scouring.

Missouri River Corralled at Garrison Dam

FIRST BATTLE to close the Missouri River at Garrison Dam in North Dakota was won by the contractors early in May when they successfully diverted the Big Muddy through the power and control tunnels. Next battle is to build the upstream diversion embankment this season high enough to prevent overtopping during the inevitable rise of the river next March. Following the beautifully planned diversion procedure worked out by the Corps of Engineers, under the direction of Col. R. J. B. (Nip) Page, Garrison District Engineer, PK-MK, contractors for the fourth stage embankment, stemmed the river flow by dumping rock from the bridge downstream from the dam, and at the same time rushed an upstream cofferdam fill across the slowing stream. PK-MK is a combination of Peter Kiewit Sons Co., and Morrison-Knudsen Co., Inc., with Ben Williams in charge as project manager.

Under construction since 1947, Garrison Dam will be the largest rolled-fill structure ever built, containing 70 million cu yd (Oahe Dam downstream will top it). It will be 12,000 ft long, 2,600 ft wide at base and 210 ft high above river bed. Outlet works and power house are at west end; gated spillway is at east end. At time of river diversion, here was the situation:

Main embankment completed on west side of river; nearing completion on east side. Spillway excavation well along, structures started. Intake structure nearing completion; foundations for powerhouse and control works finished. Eight power and control tunnels, 22- to 29-ft dia, completed. Intake and outlet channels serving powerhouse and control works excavated, but plugged to keep river out. A rugged combination highway and railroad bridge crosses the river just below downstream toe of dam. Thousands of yards of boulders—some mighty big—had been salvaged from borrowpits and stockpiled at west end for initial diversion operations.

Briefly, plans for river closure and diversion, and subsequent operations, were developed as follows: **(1)** Removal of plugs in intake and outlet channels to allow free flow of river through all eight tunnels; **(2)** Dump a rock barrier across the river from downstream side of bridge, and follow up with spalls and finer material to make this cofferdam as watertight as possible; **(3)** Build a second cofferdam of earth above upstream toe of main dam just as fast as permitted by falling velocity of the river; **(4)** Unwater area between cofferdams; **(5)** Placement of underwater sand fill under proposed upstream toe of main embankment before unwatering is complete; **(6)** Drive sheetpile cutoff wall through this sand fill soon as area is unwatered; **(7)** start main closure fill to be in-

(Continued on page 152)

Hustles with

Railside commercial site prepared fast by pair of International TD-14As



"THEY'RE POWERFUL AND FAST," owner Harold J. Anderson tells reporter in describing the performance of his two TD-14As.







the Pay Load

"My TD-14As self-load six pay yards and deliver it faster than any crawlers the same size on the market."

That's the flat statement of contractor Harold J. Anderson, out on the job where his tractors are filling and leveling a building site at Minot, N. D.

Whatever size of crawler fits your needs, there's an International model that'll come through with power, maneuverability, and good steady work, day in and day out.

Here's what Anderson says on this point:

"I've been using Internationals for four years with very low maintenance and operating costs. In fact, my first International ran three full years with no downtime for repairs."

This kind of report comes from contractors all over the country—proof that International builds real dirt-moving machines that stand the gaff.

So see the International Industrial Distributor located near you. He has the full line of International crawlers—and as a nearby source of parts, trained servicemen and complete shop facilities, he can help keep your equipment easy on the overhead for years to come.

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POWER ON PARADE. High-production International TD-14As self-load scrapers alongside burly freight engine as they prepare building site in Minot, North Dakota.

INTERNATIONAL HARVESTER

INTERNATIONAL

POWER THAT PAYS

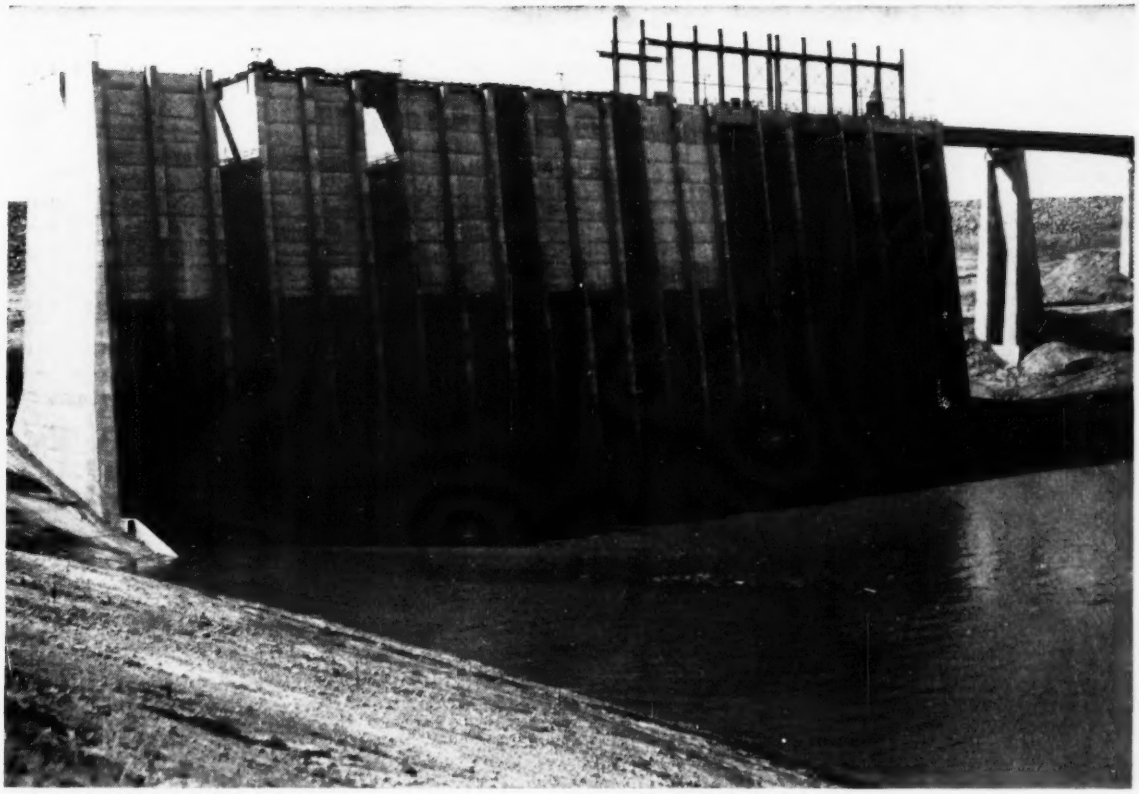
GARRISON DAM . . . Continued from page 149



Plug in intake channel is breached by Northwest 80-D dragline to let Missouri River flow through . . .

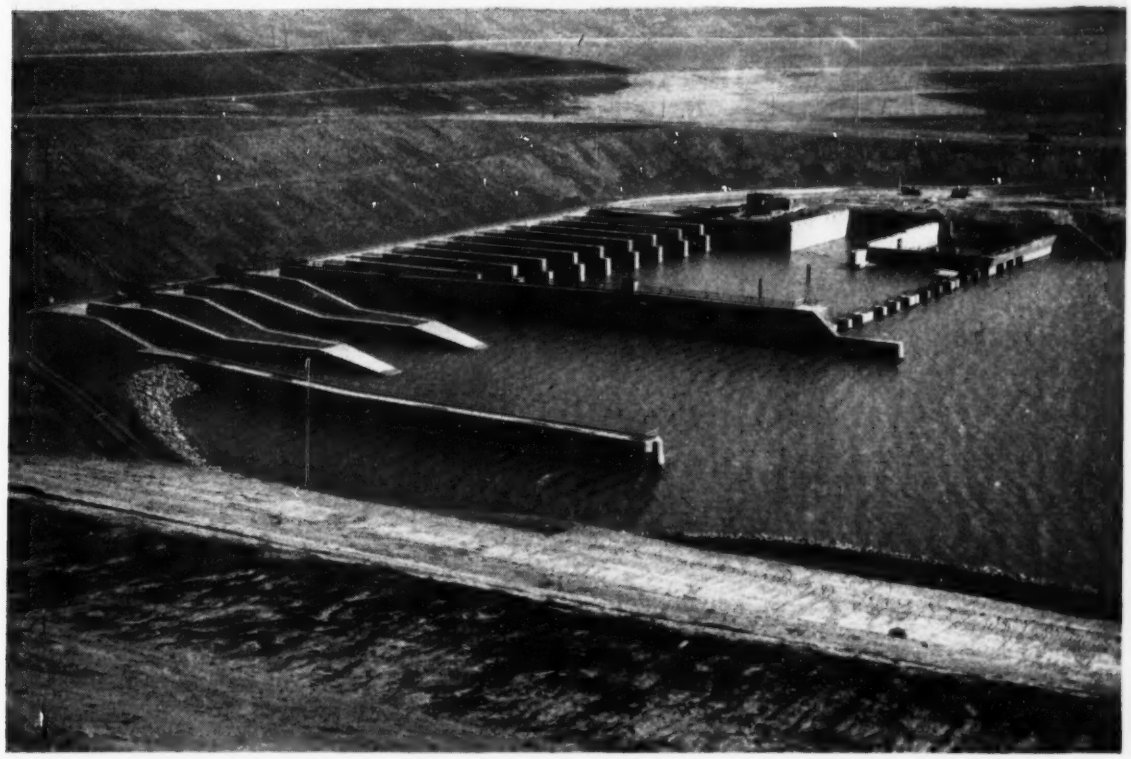


Monighan walking dragline rips out plug in outlet channel to let river waters rush upstream . . .



. . . partly completed intake structure for first time. When completed, these gates will control flow.

(Continued on next page)



. . . to engulf stilling basins of three control tunnels in foreground, and powerhouse foundations beyond.

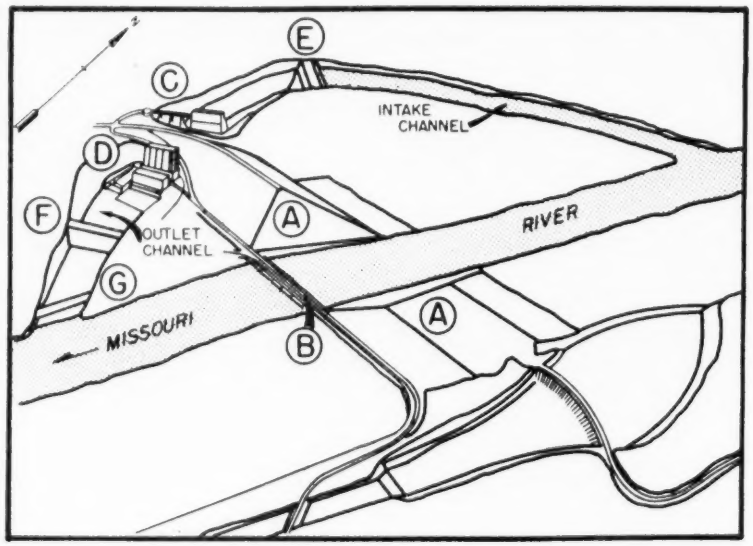


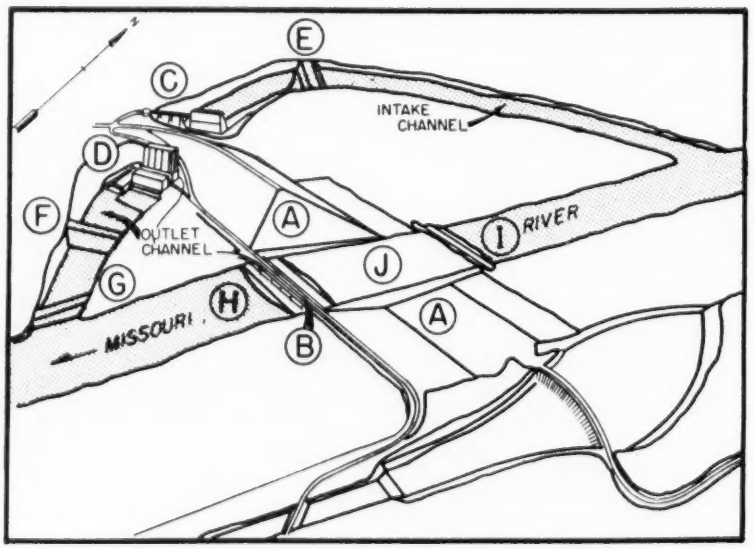
CONCURRENT WITH PLACING downstream rock cofferdam from construction bridge, upper cofferdam was pushed out from both shores to divert river from dam area. Permanent plug, that becomes part of upstream embankment, goes into area at left with sheetpile cutoff driven as under-seepage seal. Upstream cofferdam will be raised if June flood predictions indicate possible topping.

corporated into upstream toe embankment and carried to 85 ft above river bed this season to protect against next March floods, 8,500,000 cu yd required; **(8)** Raise original upstream cofferdam if runoff forecasts indicate possible overtopping in expected June rise; **(9)** Start powerhouse superstructure when river flow drops after June rise sufficiently to divert all flow through three outlet tunnels.

So much for the plans. The timing of the closure was left up to the contractors. They decided to make the move between March and June rises—and were most successful. This gives them more time to complete the main closure embankment, but still requires placing 8½ million yd of fill in about six months.

The accompanying pictures and charts show how the diversion was accomplished.





CONDITIONS AT GARRISON DAM at start of diversion activities are shown at top, right. **A**—East and west sections of main embankment, completed at west (left) end, nearing completion at east end; **B**—construction bridge carrying highway and railway across Missouri below dam; **C**—intake structure, well towards completion; **D**—powerhouse and outlet of control works, foundations completed; **E**—Plug in intake channel; **F** and **G**—plugs in outlet channel. Bottom sketch shows situation after diversion. **E, F,** and **G**—channel plugs removed allowing river to flow through power and outlet tunnels; **H**—rock barrier dumped from bridge **B** to check river flow; **I**—upstream cofferdam to effect diversion through intake channel; **J**—area between cofferdams pumped out; permanent closure fill to be built in upstream section of this area, as part of main embankment.

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(Cutaway)

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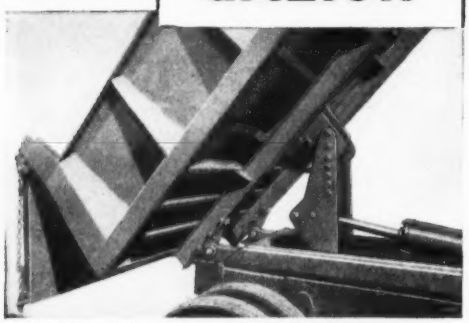
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This is GALION'S Fulcrumatic action

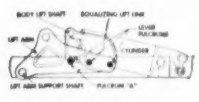


Figure 1—As the cylinder rod moves out, a powerful starting leverage is applied at Fulcrum A in a vertical direction...the body lifts smoothly and evenly.

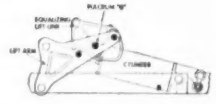


Figure 2—The body lifting effort is transferred to Fulcrum B as the rod continues outward...eliminating lift-shock and smoothing out lifting action.

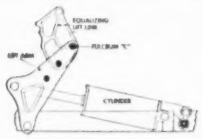


Figure 3—As the body approaches full dumping position the lifting job is transferred to Fulcrum C... maintaining uniform pump pressure and a smooth, steady dumping cycle to the very end.



MODEL 700 hydraulic hoist with Model 12-3 contractor's heavy duty body is ideal for 6½ to 8½ ton payloads

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DEPRECIATION

And Its Crucial Economic Role

The sixth annual McGraw-Hill survey of Business' Plans for New Plants and Equipment, just completed, reveals some remarkable facts about the role of depreciation in our economy. To most people, depreciation is a technical term, used by accountants to discuss a dull subject. But it really is a simple matter: It is the amount of money set aside each year by a company to replace plant and equipment that is wearing out. And here are some facts from this survey* which show how depreciation can make the difference between prosperity and recession in the United States:

1. *In 1953, about half of all the money spent on new manufacturing plants and equipment will come from depreciation reserves.* For the future, manufacturing companies are relying even more heavily on this source of money. In the years 1954-56, they count on using their depreciation funds to pay for almost two-thirds of the new plants and equipment now planned.

2. *The amounts of money made available by depreciation allowances vary greatly from industry to industry.* Some industries, such as those producing steel, chemicals and petroleum products, will have relatively large amounts of cash available from their depreciation reserves. In considerable measure, this is because the government is allowing them to accumulate such reserves at an accelerated rate as an encouragement to build facilities required for national defense. But most of the companies engaged in the production of textiles, processed foods and many kinds of machinery have had little chance to benefit by this provision for accelerated depreciation. Hence, they have much less money available from depreciation reserves.

3. *There is a definite shortage of investment funds in the industries that have relatively low depreciation allowances.* Taken together, the coal mining, textile, food processing, machinery and other metal-fabricating industries plan to spend about $4.7 billion for new plant and equipment this year. But they report that they would spend $1.5 billion *more* per year during the period 1954-56 if sufficient funds were available.

4. *Eighty-five per cent of the manufacturing companies covered by the survey reported that they plan to invest all their depreciation funds* to keep equipment up-to-date and to provide capacity for new products and new markets. These companies could let their depreciation funds pile up as idle cash. But the intention is to spend most of them for capital equipment.

(Continued on next page)

*The sixth annual McGraw-Hill survey of Business' Plans for New Plants and Equipment included companies that provide 25 per cent of all industrial employment and 60 per cent of employment in those industries where capital investment is highest. These companies are mostly the larger companies in their respective industries. A copy of the full report of this survey can be obtained by addressing: Department of Economics, McGraw-Hill Publishing Company, Inc., 330 West 42nd St., New York 36, N. Y.

Hence, there is a direct relationship between the amount of depreciation funds available and the level of capital investment. And it is upon the latter that the level of general prosperity decisively depends. One-third of all industrial workers are engaged in producing or installing such equipment.

This fact that the level of depreciation allowances has a major bearing on the level of capital investment should not surprise anyone. In several foreign countries where these allowances have been increased, investment has boomed. The two nations with the highest ratios of investment to national income are Canada and Norway. Both countries adopted flexible depreciation policies after World War II. In Sweden and The Netherlands also, flexible depreciation allowances have contributed to rapid industrial expansion. Finally, the tremendous investment brought about by our own rapid amortization program shows dramatically the importance of depreciation in stimulating capital expenditures.

Obsolete Tax Laws

In spite of this record, the fact remains that our laws and the business procedures that govern depreciation allowances — in particular the laws and rulings that govern the deduction of depreciation from taxable corporate income — are still based on antique and obsolete accounting concepts which take no account of depreciation's dynamic role in our economy. The internal revenue code still requires most companies to depreciate their equipment over a long period, even though these small annual allowances cannot possibly pay for the investment that is necessary to keep a plant up-to-date under today's rapidly changing technology, with its production of new and improved machinery.

The only allowance made by the government for rapid depreciation is that which is authorized for certain types of plants during the defense emergency. Under this policy most companies are unable to use accelerated depreciation for tax purposes. And as defense projects are completed, the number of new authorizations is dropping. We may lose the chance to utilize fully this powerful tool for sustaining investment because, under our ramshackle emergency tax structure, accelerated depreciation is available only to a minority of firms on a temporary basis.

New Policy Needed

A sensible, up-to-date depreciation policy for tax purposes is long overdue. Either the Treasury must modernize the internal revenue code on its own initiative, or Congress must take the lead by writing into permanent law a flexible depreciation policy applicable to all companies.

Treasury experts now have before them a number of proposals to allow faster depreciation for the average firm. The U.S. Chamber of Commerce has suggested that companies be allowed to deduct from taxable income 25 per cent of the cost of new equipment in the first year, with the remaining cost to be deductible over the life of the facilities. The Machinery and Allied Products Institute has long sponsored a formula that would allow full deduction in two-thirds of the estimated life of the property. In Congress, Chairman Reed of the Joint Committee on Internal Revenue Taxation has stated that we need a more flexible depreciation policy. Senator Frear of Delaware has introduced a bill that would let a business make its own choice on how fast to depreciate its equipment.

It will take time and study to determine which of these various proposals best fits the needs of the economy without sacrificing unduly the revenue needs of the government. If we are to have a new depreciation policy, designed for a long period ahead, it must be carefully worked out. But this much is clear right now: *The development of a flexible depreciation policy on the part of the federal tax authorities is one of the most important steps that can be taken to sustain prosperity. When we talk about depreciation, we are talking about the money that pays for almost two-thirds of the new manufacturing facilities now scheduled for construction. We are talking about the new investment and the new jobs on which our continued prosperity depends.*

McGraw-Hill Publishing Company, Inc.

THE ENGINEER'S REPORT

DATA

LUBRICANT RPM Delo Oils

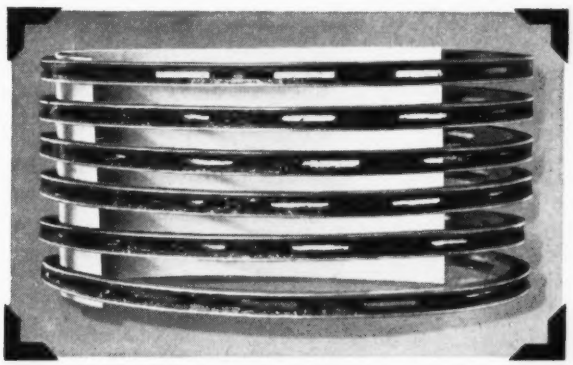
UNIT D-8 Caterpillar

SERVICE Earthmoving contract work

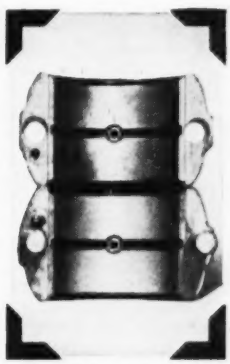
CONDITIONS Heavy loads — dirt, dust

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Engine parts "like new" after 7721 hours!







THIS SET OF OIL RINGS and the piston and con-rod bearing at right—all from a D-8 Caterpillar using RPM DELO Heavy Duty Lubricating Oil—appear just as they did when removed after 7721 hours of earthmoving work. There were no broken or stuck rings; the oil-return holes were open; all parts were free from deposits. The crankshaft was not more than 0.001 inch out of round at any point and was reinstalled.



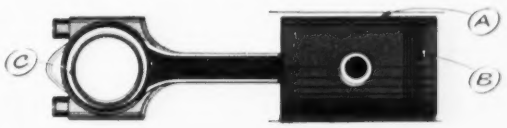
THE D-8 "CAT" above is the one from which the parts came. It is one of 11 large diesel tractors operated by the T. H. Walsh-Argo Engineering Co., Los Angeles. By using RPM DELO Oils, the company regularly gets 5000 or more hours between overhauls.



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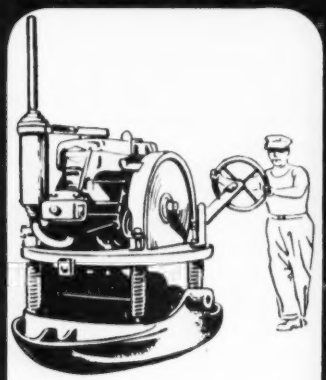
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THIS REX-SPANGLER steering tandem front axle coupled to the standard front axle of this International truck can increase the legal pay load by 5 tons.

To Help Cure Overload Problems . . .



ADAPTABLE either to standard or cab-over-engine trucks, the unit is a tandem bogie that steers all four front wheels, yet retains easy steering with complete control.

. . . add a Steering Axle to Front Axle

WE WENT OUT to Milwaukee last month—Milwaukee that's the town with the brand new big league ball team—and we're glad we did, because we saw something that might be the answer a good many truck operators have been seeking for a number of years. It's the Rex-Spangler dual steering front axle, Chain Belt Co.'s answer to hauling increased legal payloads—not by just a few hundred pounds, but as much as 5 to 7 tons—and still stay within the legal weight limits on axle loadings set forth by most states.

We not only had the opportunity of seeing this amazing unit in various stages of construction, but also had a spine-jarring ride down a railroad track over bumpy ties in a cab-over-engine truck with which it was equipped. In fairness, however, the truck in which we rode was simply a chassis with no load whatsoever. Some of the other guests rode in one with a mixer body and they reported the ride exceptionally smooth with no apparent difficulty in steering.

This Rex-Spangler dual steering tandem front axle is an additional steering axle coupled to the standard front axle of a truck by a walking beam. The result is a tandem bogie that steers all front wheels with center poise steering, which the maker claims has many advantages. Equipped with four tires,

(Continued on page 163)

FOR SOIL COMPACTION IN RESTRICTED AREAS!

BARCO *is the Answer!*



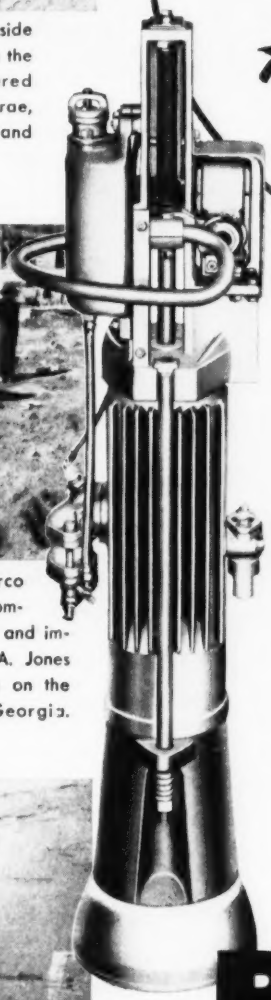
CALIFORNIA HOSPITAL—Ability to work inside buildings and in other restricted areas makes the Barco Rammer invaluable. The job pictured above is on the Peninsula Hospital near Millbrae, California. *Contractors:* Williams & Burrows and Carl N. Swenson Company. (*Photo:* CONSTRUCTION ILLUSTRATED.)



GEORGIA HOUSING PROJECT—With Barco Rammers, you can finish fill to high degree compaction immediately for quicker completions and important savings in cost. This is why the J. A. Jones Construction Co. used seven Barco Rammers on the Lakewood Housing Project at Atlanta, Georgia. (*Photo:* DIXIE CONTRACTOR.)



NEW YORK DAM—Exacting specifications for soil compaction on the Downesville Dam project of the New York City Board of Water Supply were easily met by Barco Rammers used by Carlo Bianchi & Company. (*Photo:* CONSTRUCTIONEER.)



SOIL COMPACTION is the key to *better construction* on important building projects throughout the country—and on these jobs, BARCO IS THE ANSWER! Time after time, it has been proven that no other type of equipment can match BARCO PERFORMANCE.

The Barco Rammer is a completely self-contained unit; no auxiliary or extra equipment is required. On area tamping, where specifications call for 95% to 97.5% (modified Proctor) compaction, one man can average 20 to 30 cubic yards of fill per hour, day after day.

If you are not already using the Barco Rammer for soil compaction work, find out about it now! *Worldwide Sales and Service.* BARCO MANUFACTURING COMPANY, 512G Hough St., Barrington, Illinois. (*Near Chicago*).

BARCO

"Pegson" Gasoline

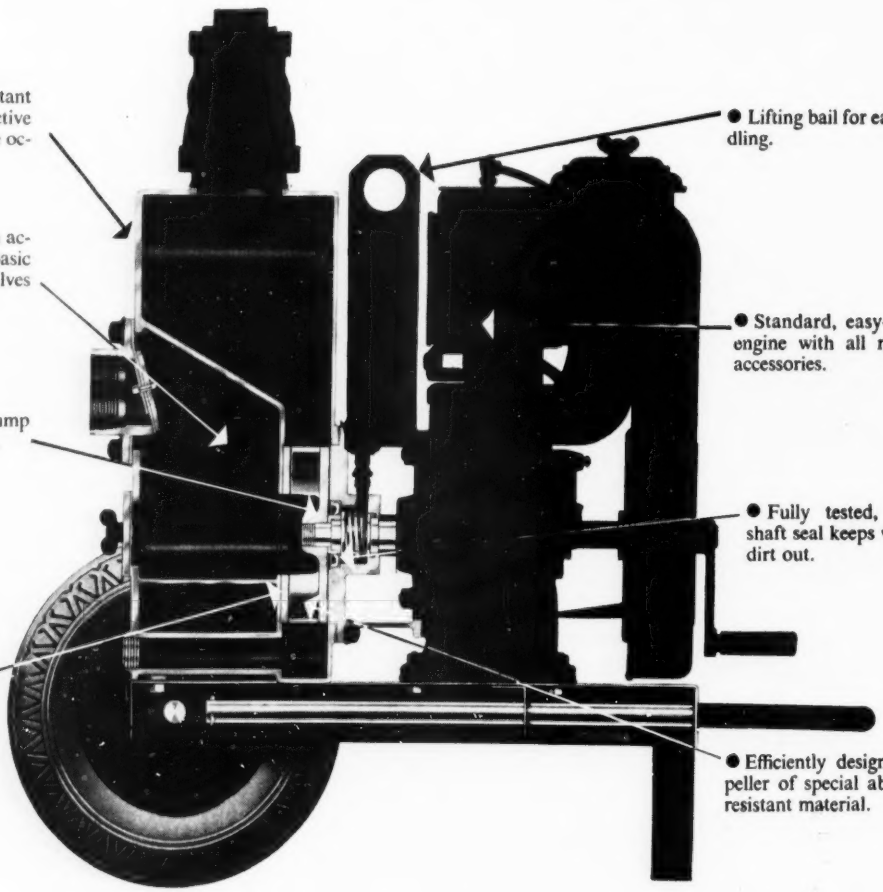
RAMMER

For Soil Compaction Close to Walls, Culverts and Abutments — in Trenches, Ditches

FREE ENTERPRISE — THE CORNERSTONE OF AMERICAN PROSPERITY

Here's the simplest, sturdiest pump a contractor can use

It's the Worthington **BLUE BRUTE** *Self-priming Centrifugal Pump*



- Light weight, rust-resistant steel casing permits effective field repair if job damage occurs.
- Self-priming operation accomplished by correct basic hydraulic design. No valves or parts to clog.
- Only two moving pump parts—seal and impeller.
- Renewable and reversible impeller wear plate doubles impeller life.
- Lifting bail for easy handling.
- Standard, easy-starting engine with all necessary accessories.
- Fully tested, reliable shaft seal keeps water in, dirt out.
- Efficiently designed impeller of special abrasion-resistant material.

MINIMUM MAINTENANCE!

Every feature pointed out above was designed into this pump to reduce maintenance requirements to the bare minimum. Over a hundred years of Worthington pump building experience assure you that the Blue Brute is the finest pump you can buy.

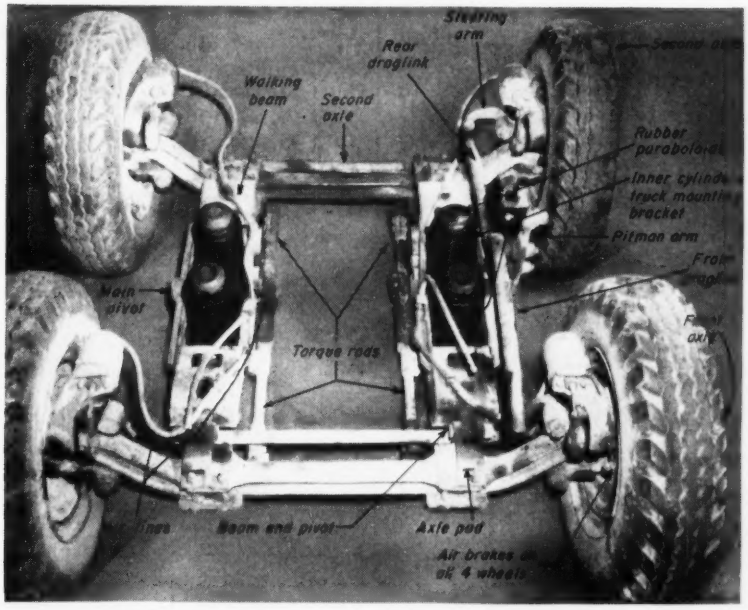
It'll pay you to find out more about the Blue Brutes. Ask your nearest Worthington distributor for Bulletin W-2010-B20. Or write to Worthington Corporation, Construction Equipment Division, Plainfield, N. J.

H.3.4

WORTHINGTON

IF IT'S A CONSTRUCTION JOB, IT'S A **BLUE BRUTE** *JOB*

ROCK DRILLS • WAGON DRILLS • COMPRESSORS • CONCRETE MIXERS • PORTABLE PUMPS



MANY PATENTS were issued for units similar to this one, but Chain Belt experimenting for 7 yr developed this unit, which is said to be practical for general use.

a blowout on the front end leaves three good tires and reduces to a minimum the possibility of losing control of the vehicle. They claim twice the tractive capacity for controlling with the addition of the axle. Superior flotation and less wear and tear on the truck are also claimed. Dangerous jackknifing is virtually eliminated with this unit.

Seven-Year Development

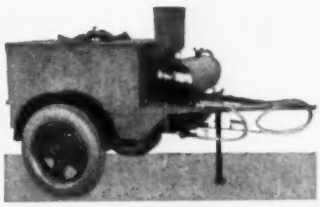
Although this rig which Chain Belt has perfected seems to be a simple machine now that it is actually built and in operation in the field, it was a long time coming. More than 150 patents have been issued over the years for a similar means of steering and suspending front-end and rear-tandem axles. However, few units are in operation both here and abroad due to the limit of their operation, because wheel articulation and steering were said to be impractical for general use. This Rex-Spangler unit, 7 yr in development, has free articulation of the wheels, plus shock-free steering, regardless of the position of the wheels or load conditions.

One of the principal reasons the Rex-Spangler unit was developed is that the enforcement of state highway restrictions in recent years has challenged the industry to devise a means of hauling a reasonable payload and still stay within the law. Many truck operators did overload axles and risk being fined, because in some cases the fine was negligible, as compared with the profit on the overload. But fast deteriorating highways in sections all over the country, blamed on overloaded trucks, plus stiffer fines, has forced the truck operator to stay within the legal limits. His operating costs have gone up, and his profit sharply down. About the only alternative left for the owner of trucking equipment was to purchase lighter equipment, which usually meant shorter truck life and increased maintenance costs.

However, Chain Belt chose another method—better distribution of this additional payload by equipping the truck with an extra front axle. Each additional axle on a vehicle will increase its ability to carry additional payload. However, the problem was to get that extra axle on the front end and still be able to steer the truck easily, mechanically or hydraulically, and retain complete control regardless of field conditions or load.

The unit has been field tested under a variety of conditions. It has stood up for 3 yr in mud, sand, and snow and on demonstration tours. Now, Chain Belt says it is ready to be manufactured for customer use and is working out a plan where installations can be made in various spots throughout the United States. Conversion costs depending on size of truck to be modified will be $3,300 to $3,700.

Here is what constitutes the unit: Two standard axles are used and



HEATING KETTLES
FOR ASPHALT AND TAR
Fire Proof — Oil Burning
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Other Products
CONCRETE VIBRATORS
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Need Holes In Concrete?

GET 50% MORE HOLES WITH TERMITE DRILLS!

Penetrate toughest concrete with less pressure and with less drill wear . . . with TERMITE DRILLS. Pulverizing action eliminates objectionable noise. Exclusive construction gives you cleaner, more accurate holes in less time and at less cost. Use with standard electric drills or air motors.



Free Factory Resharpening

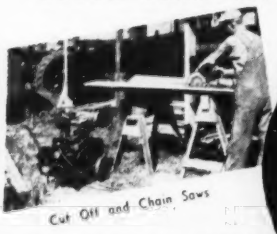
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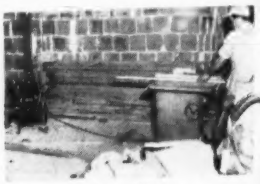
TERMITE DRILLS

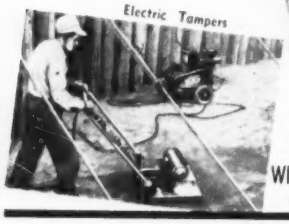
Lengths up to 36". Standard diameters from 3/16" to 5". Other diameters up to 8" on special order.

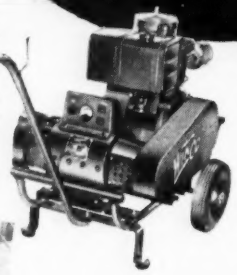
TERMITE DRILLS, INC.
85 N. Lotus Ave., Pasadena 8, California

CUT COSTS
SAVE TIME with . . . . . Economy-Engineered WINCO ENGINE GENERATORS


Cut Off and Chain Saws


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Electric Tampers



MODEL 4500 — 2500 Watts A.C. on Speedy Skid Portable base. Other models 500 Watts to 10 KW. Prices start at $214.00. Write for details.

Why burden your costs by using hand tools on jobs away from accessible power? WINCO portable Economy-Engineered Generators supply ample power for cost-cutting electric saws, drills, planers, routers, tampers, pipe threaders — and lights, too! Low-cost construction demands portable electric power — WINCO Generators provide it efficiently and economically for every job!

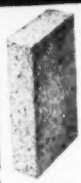
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A wholly owned subsidiary of Zenith Radio Corporation

Servicised PREMOLDED JOINT FILLERS

A COMPLETE LINE FROM ONE SOURCE TO MEET ANY REQUIREMENTS



KORK-PAK*
Exclusive with Servicised. Lowest cost non-extruding joint filler. 80% recovery after compression. Low moisture absorption. Readily handled without breakage.



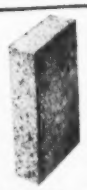
SELF-EXPANDING CORK
For positive joint filling. Specially treated to expand 50% beyond original thickness after compression to keep joint filled under contraction which opens space to more than original size.



ASPHALT
Forms an easily compressible cushion. Highly waterproof, low in cost. Made in 5 thicknesses in any length or width. Formed between two sheets of asphalt saturated felt paper which increases strength and rigidity, improves handling.



SPONGE RUBBER CEMENTONE
Blends with color of concrete. For use in architectural concrete structures such as bridges, viaducts, etc., where black color of ordinary fillers would be objectionable. Fully resilient —non-extruding.



CORK
High recovery factor (95%) after compression, non-extruding qualities and light color make Cork Joint Filler ideal for use in flood walls, outlet works and spillways, sewage treatment plants, filtration plants and bridge construction.

WRITE FOR THE COMPLETE SERVICISED CATALOG.
Describes the full line of Servicised Asphalt, Cork, and Rubber Composition products.



**KORK-PAK is one of the many Patented products developed for the Construction Industry by Servicised Products Corp.*

SERVICISED PRODUCTS CORP.
6051 W. 65TH STREET • CHICAGO 38, ILLINOIS

OVERLOAD PROBLEMS . . .
Continued

two walking beams, a right and left, are attached. These beams with the center pivot provides the free articulation of the wheels and the center poise steering.

Cylinders projecting above the beam are inter-cylinders which slide into the mounting bracket on the truck frame. The walking beam is attached at either end by a pin joint which is free to move in two directions. The bracket supporting these pins is attached to the axle pad in the same manner as a spring is normally attached to the axle. This forms the upper tie between the two axles.

Axle Alignment

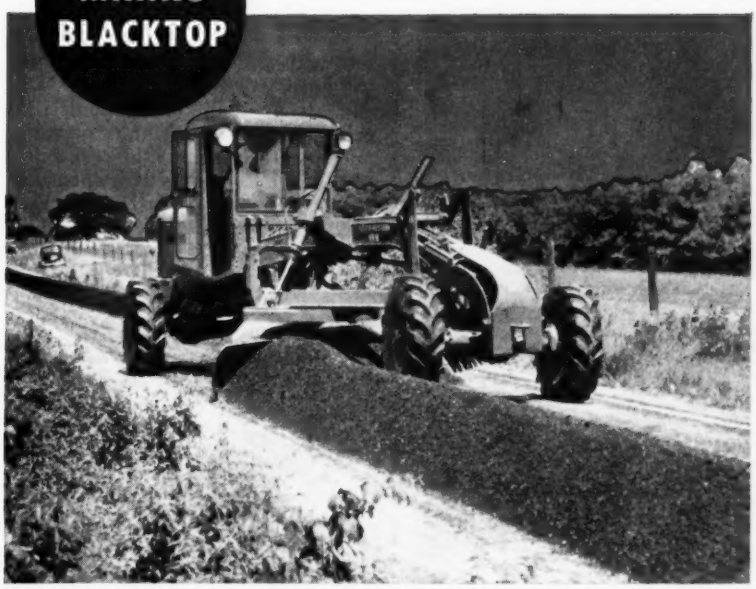
To keep the axles aligned, it is necessary to have a lower tie. This is accomplished by torque rods which are pivoted at a point below the main pivot of the walking beam. These torque rods have ball sockets at either end, permitting free movement for the deflection of the axles and still retaining the stability of the axle. In the top of these cylinders are rubber paraboloids which suspend the vehicle. Coil springs in these cylinders were first used, but after some development work by the U. S. Rubber Co., this type of suspension was found to be far superior. Rubber, having greater dampening capacity and the shape being a paraboloid, a uniform deflection can be obtained for any load.

A Pitman arm is the most important part of the steering linkage. The Pitman arm pivots from the bottom on the same shaft from which the torque rods are pivoted on the inside of the beam. The first drag-link connection goes to the second axle and the next drag-link connection goes to the front axle. By the proper location of these two points and the location of the steering-arm balls on the axle, the proper turning angle for the front and the second axle is established. The upper drag link connection is hooked to the regular Pitman arm on the steering box of the truck. Because of the greater distance from the pivot to the main drag link, as compared to the distance from the pivot to the front and rear drag links, a mechanical advantage is obtained for the steering of the additional axle.

Capacity—20,000 to 30,000 lb, dependent entirely upon the capacity of the axles which are utilized

(Continued on page 166)

MIXING BLACKTOP



you've got to

Swing that Rear-End

for TOP performance

Austin-Western Power Graders do a superlative job on blacktop. ALL-WHEEL DRIVE provides the power and traction for high-speed operation. PRECISION SIDE SHIFT moves the blade in or out, as desired, while the grader is in motion. Ample throat room between top of blade and bottom of circle makes it possible to move a tremendous windrow without interference.

CONTROLLED TRACTION — product of exclusive ALL-WHEEL DRIVE and ALL-WHEEL STEER — places all wheels where they miss the windrow; moves a maximum amount of material the maximum distance. Yes, on oil mix, as on many other types of work, you've got to SWING THAT REAR-END for *top* performance.

FINISHING SLOPES AND SHOULDERS



MOVING WINDROWS



GRADING SLOPES



CLEANING DITCHES



...handling many other jobs

Austin-Western

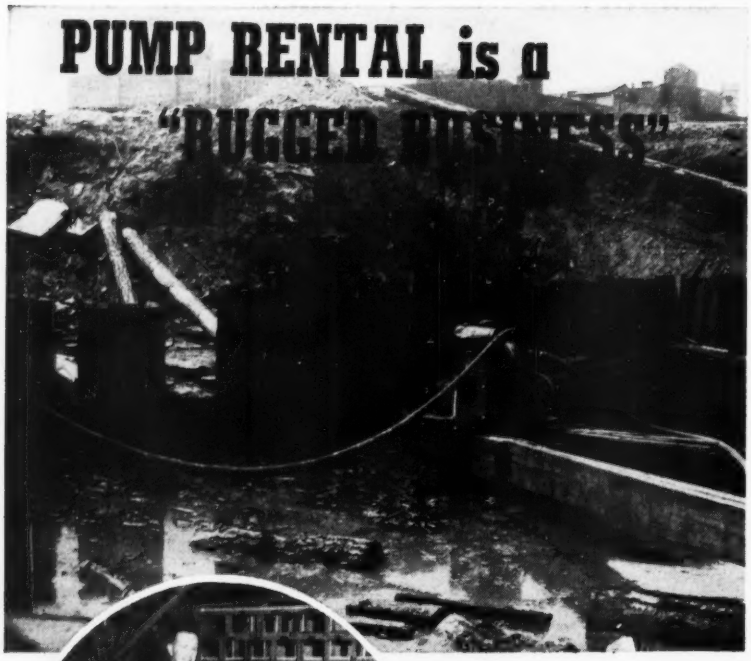
Power Graders
Road Rollers · Motor Sweepers

BALDWIN BLH LIMA HAMILTON

Construction Equipment Division

Manufactured by
AUSTIN-WESTERN COMPANY
Subsidiary of Baldwin-Lima-Hamilton Corporation
AURORA, ILLINOIS, U.S.A.

PUMP RENTAL is a "RUGGED BUSINESS"





James King, General Manager of Birmingham Rock Bit Company says:

"We operate one of the largest pump rental fleets in Alabama, and our pumps are Marlow exclusively. We wanted pumps that would stay on the job longer without maintenance, that's why we chose Marlows. Our customers are well satisfied with Marlow Performance."

. . . *and* MARLOWS *are built to take tough on-the-job abuse!*

Sure! Marlow Pumps are built to take tough day-in-and-day-out use in the field without shutdown for maintenance or repair. That's why more and more rental fleet operators are *standardizing* on these dependable Marlow Engine-Driven Self-Priming Centrifugals, and that's why contractors, too, are *buying more Marlows than any other pump*, because Marlows have the features they demand.

Marlow builds models in all A.G.C. ratings from 4M to 200M, 1½" to 10"—plus many other models including the Famous MARLOW "Mud Hog".

For complete information on these modern self-priming centrifugal pumps, see your Marlow dealer or write for bulletin C-52.

337

- SIMPLE CONSTRUCTION
- LONGER LIFE
- LOWER MAINTENANCE
- FASTER PRIMING
- HANDLES TRASH
- HIGH EFFICIENCY
- LOW FUEL COST

MARLOW PUMPS RIDGEWOOD, NEW JERSEY
Branch Plants: DeQueen, Arkansas; West Chicago, Illinois
Other factories in France and England. Distributors and Dealers everywhere.

OVERLOAD PROBLEMS . . .

Continued from page 164

in the conversion. The unit itself has a capacity of 30,000 lb.

Weight — The conversion unit will add approximately 2,100 lb to the gross weight of the truck. The conversion results in a beneficial chassis weight shift that permits additional payload on the rear axle. This is due to the front suspension point being moved farther behind the weight imposed by the engine and gear case. This, while it adds additional weight to the front, reduces the truck weight on the rear to permit additional payload to be hauled and still complies with the same legal axle limit.

Axle position—The front axle of the tandem remains in the same location as the standard single axle on the truck before conversion.

Turning radius — The turning radius is the same as before conversion. This is due to the fact that the turning radius is a function of the angle of cut of the front wheels, and the distance from the front axle to the center line of the rear tandem. Since no change was made in this relationship, there is no change in the turning radius.

Truck tandem spacing—55 in. from center line of first axle to the second axle.

Front tandem weight distribution—Each of these axles carries an equal share of the load under all conditions. This is said to be the reason other front tandems with individual wheel suspension are not practical.

Wheelbase—For load distribution purposes, the distance between the center of the front tandem and the center of the rear tandem is used, because these are the points at which the payload and the truck frameload are imposed on the suspension system.

Steering gear box—The steering gear box of the truck is unchanged.

Power steering—The increased mechanical advantage of the main Pitman arm on the unit is sufficient for normal conditions. For excessive loading on the axles or for additional ease of steering, a hydraulic booster is easily installed on the Pitman arm.

Suspension—The suspension is obtained with the special rubber paraboloids. We honestly believe after seeing this unit, that Chain

Belt, in its Rex-Spangler dual steering axle, has something to offer to the industry which is one of the most advanced steps taken in many years to improve highway operation.

If this new unit appears to have a place in your operations, Chain Belt in Milwaukee will be glad to arrange to demonstrate, or if you are in the East, T. A. Miller, a concrete operator at Hamburg, Pa., has three trucks, equipped with the new front end, and he is so satisfied with them that he will be glad to show them working under actual job conditions any time.

* * *

Ed. Note:

Although we liked what we saw in the Rex Spangler unit in Milwaukee, we wanted the opinion of someone who actually owned and operated a truck with the Rex Spangler unit conversion. Without the knowledge of the manufacturer, we wrote to T. A. Miller of Hamburg, Pa., and asked him for an honest good or bad opinion of the new unit. This is his reply:

"About two years ago Hahn Motors, Inc. installed an experimental Spangler Conversion Unit on my GMC C. O. E. chassis. Since then I have been using the truck practically every day and hauling concrete in the Rex Mixer mounted on the truck. At this time I have about 22,000 total miles on this truck and the only repairs made on the conversion unit have been the replacement of worn bushings and a couple of pins.

"The original tires are still on the truck, and they still have quite a bit of the original tread. My past experience shows that we could not expect much more than 10,000 mi on our tires due to cuts, bruises, etc. resulting in blowouts.

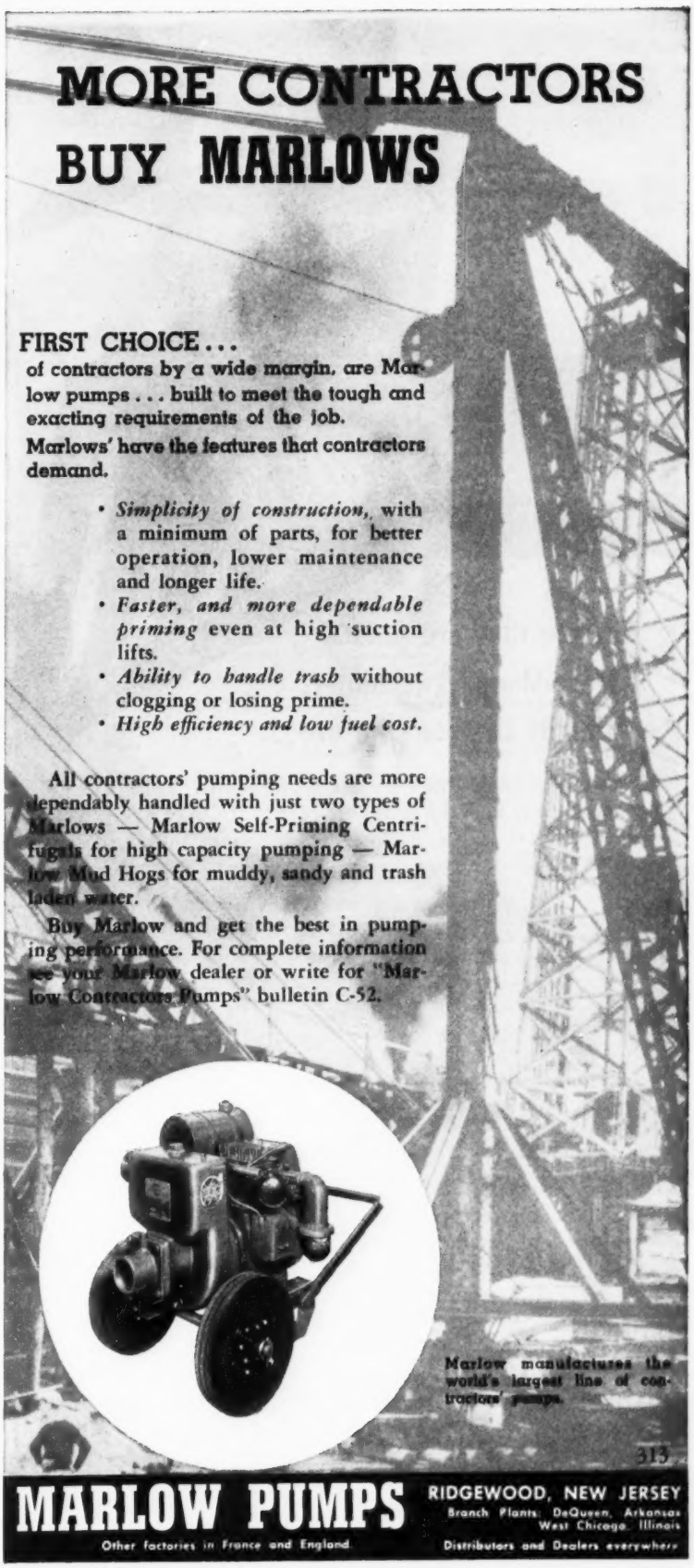
"In all the time the truck has been operating it has been able to deliver concrete on the job in greater amounts than any other I have ever owned, and it has reduced to less than half the need for using wheelbarrows to deliver the concrete from the mixer to the job. This is because of the short turning radius, greater stability and maneuverability of the truck. In other words, if someone had told me two years ago that this truck could perform as well as it has I certainly wouldn't have believed him.

"I am very happy with the units and have since purchased a second identical unit, as well as having the conversion mounted on one of my International trucks. I have also ordered the conversion unit for a second International.

I will be very happy to show anyone these trucks in operation and answer any of their questions about the trucks."

Signed
THOS. A. MILLER & SONS

COMING . . . in July
Equipment-Maintenance Directory



THESE REPOINTERS ARE

wear-conditioned



Because they are AMSCO "Wear-Sharp"* Repointers that stay sharper with use...

Service life plus! The combination of Amsco Manganese Steel and the hardness of AMSCOATING with Amsco Hardfacing electrodes—gives you a tooth that wears evenly and stays sharp longer.



Note that only certain grooves (shown in red at left) are Amscoated—the grooves on the outside and the one on each end. This is the area where ordinary teeth wear fastest. The hardened corners on the "Wear-Sharp" equalize wear along the entire cutting edge and eliminate rounded, blunted corners that cut digging speed and waste power.

Field reports indicate that "Wear-Sharp" repointers will give as high as six times the life of other teeth.

In these photographs at right of a typical case history, old repointers lasted from three to four days. Amsco "Wear-Sharp" repointers lasted 32 days—eight times the service life of the repointers previously used.

"Wear-Sharp" repointers installed on two dipper teeth showing condition of old teeth.



Notice the even wear on these teeth after 257 hours of use with "Wear-Sharp" repointers used. New "Wear-Sharps" are ready for installation.

American Brake Shoe Company

AMERICAN MANGANESE STEEL DIVISION

385 EAST 14th STREET • CHICAGO HEIGHTS, ILL.

Other Plants: New Castle, Del., Denver, Oakland, Cal., Los Angeles, St. Louis. In Canada: Joliette Steel Division, Joliette, Que. Amsco Welding Products distributed in Canada by Canadian Liquid Air Co., Ltd.

Bought one DW21, reordered 6 more in 14 months!

DAVE GUSTAFSON & CO., INC.
HIGHWAY CONTRACTORS

502 EAST SIXTH — PHONE 8-3951 — SIOUX FALLS, S. D.

January 9, 1953

Caterpillar Tractor Co.
Peoria,
Illinois

Gentlemen:

Our experience in the contracting business dates back to 1926. Our original equipment consisted of one Caterpillar Model Sixty Tractor.

When Caterpillar came out with the DW10 rubber-tired Tractor, we bought two of these units with scrapers as we felt that moving dirt on rubber-tired rigs was a better way of getting the job done. Caterpillar didn't let us down!

In July of 1951 we bought our first DW21 Tractor-Scraper outfit. The performance of this machine was so good that we added two more units in February 1952. Since that time we have purchased four more DW21 Tractor-Scraper outfits: two in April and two more in September of 1952 for our road building projects in South Dakota, because we have found that this is the cheapest method known today for handling dirt on projects such as ours.

When we bought the two DW21 Tractor-Scraper units in September we had just started work on a sub-contract from Peter Kiewit Sons Co. for grade construction of the "four lane highway" from Weaver Airforce Base to Rapid City, South Dakota, consisting of 650,000 cubic yards to be moved in 90 calendar days. Hauls on this job ranged from 400 feet up to 2 1/4 miles one way. Working a single ten hour shift, six days a week our DW21s really put it across on time.

In addition to our DW21s, we have ten Caterpillar crawler Tractors, and five Caterpillar No. 12 Motor Graders.

Our DW21s have the power and stamina to stay on the job and keep the dirt "moving" without costly breakdowns and delays. We feel that Caterpillar performance is second to none and is backed up by the best parts and service facilities to be found.

Very truly yours,

DAVE GUSTAFSON & CO.

L. S. Malm

L. S. Malm
Vice President



Dave Gustafson & Co., Inc., of Sioux Falls, S. D., bought its first Caterpillar DW21 and Scraper in July, 1951. By September, 1952, it had a fleet of 7 of these earth-eating Cat* units.

Why?

L. S. Malm, vice president of the company, has a telling explanation:

"We have found this is the cheapest method known today for handling dirt on projects such as ours."

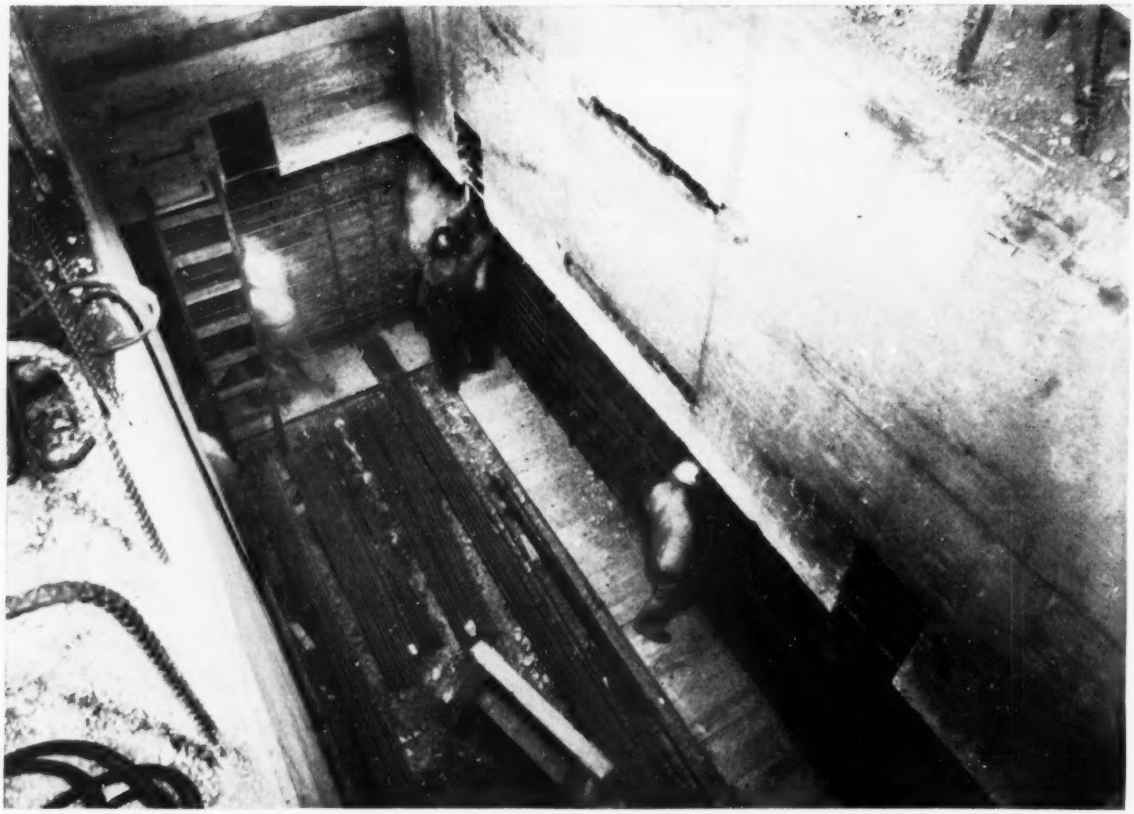
Don't keep throwing good money after bad on less capable earthmoving equipment. Have your Caterpillar Dealer demonstrate the money-saving advantages of having DW21s on your side.

Caterpillar Tractor Co., Peoria, Illinois.

CATERPILLAR*

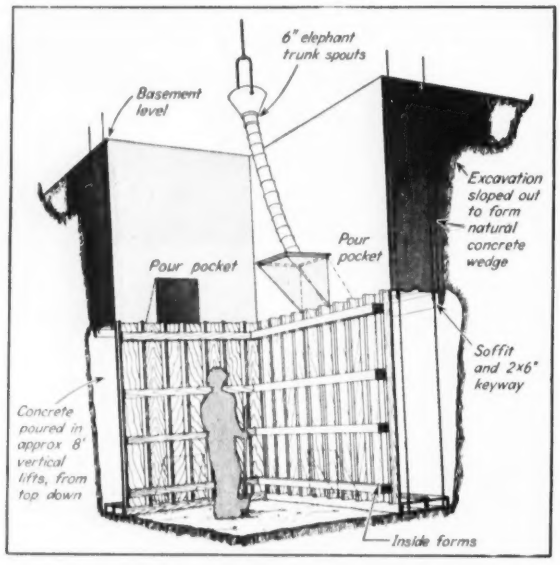
*Both Cat and Caterpillar are registered trademarks—®

NAME THE DATE... YOUR DEALER WILL DEMONSTRATE



STARTED AT BASEMENT LEVEL, this pit was put down in seven sections of approximately 8-ft lifts. On this first section, the upper portion was sloped out to form a natural concrete wedge. Excavation on each step was made as soon as concrete had set.

They Didn't Start at Bottom and Work Up on This Job



THIS SHOWS how the step-by-step pouring and excavation were accomplished. Although the over-all depth of the pit was 70 ft, only 49 ft was excavated, starting from basement level.

AT THE $25-MILLION TIN PLATE MILL recently completed at the Kaiser Steel Corp.'s Fontana plant in California, engineers faced a problem in constructing a 70-ft deep "looping" pit, but H. V. Zilm, superintendent of construction, solved it and with a comparatively low-cost method.

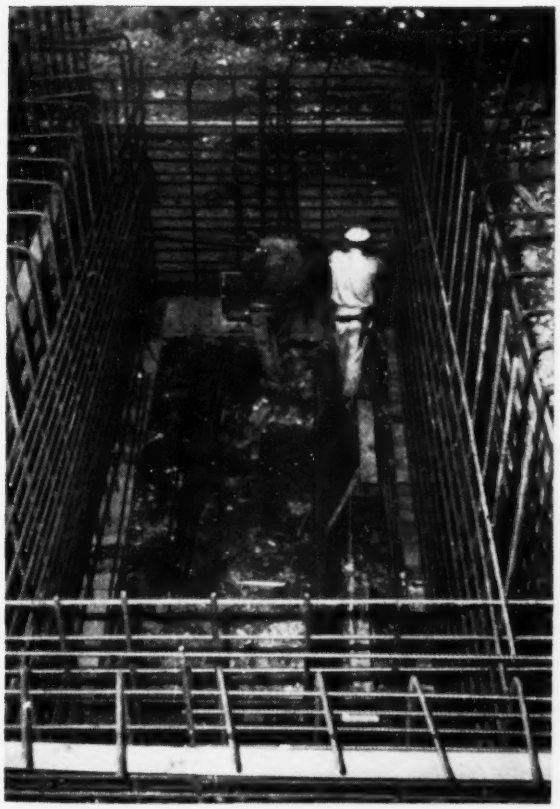
The pit, 8x20½ ft inside dimensions, is used to pay out a 36-in. wide steel sheet to the electrolytic tinning line, while a new coil is being placed and butt welded to form a continuous strip.

Building footings around the pit location had already been poured, and the problem was what method should be used in making the pit excavation and pouring the concrete.

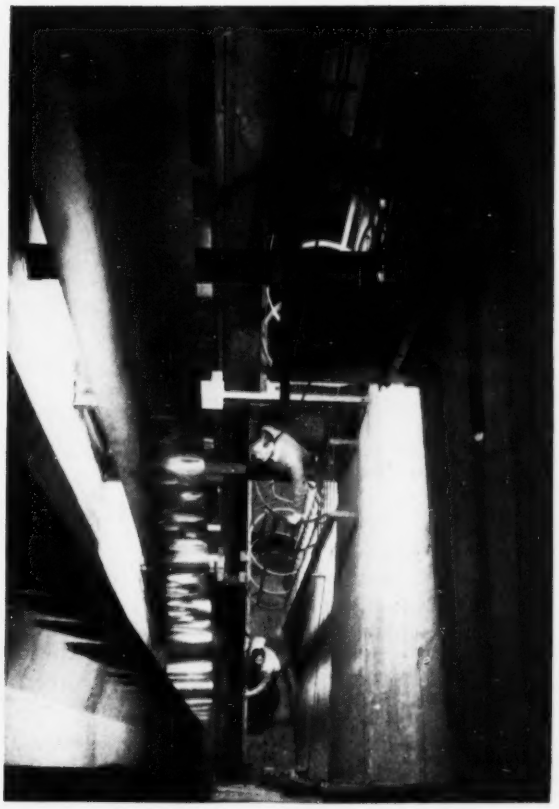
It was decided finally to do the job by making seven sectional concrete pours of 8 ft or less, working from the top down.

Actually the pit was only 49 ft deep because the starting point was at basement level. The upper 21 ft required was erected by using conventional form methods.

On the first 8-ft excavation, the upper portion was



REINFORCING BARS were installed with the vertical bars extended 5 in. through the soffit. The bars were 5 in. lap welded to those protruding from the previous section.



HERE'S THE FINISHED PIT, 70 ft deep, with the 36-in. wide steel sheet being played out to the electrolytic tinning line. It is 8x20½ ft, inside dimensions.

sloped out to form a natural concrete wedge (sketch). With this method of construction, the top is wider than the bottom. At the bottom was placed a shiplap soffit and a 2x6-in. keyway. Reinforcing was installed with the vertical bars extended 5 in. through the soffit, and the inside forms built. Wedge-shaped blockouts, six of them, 2 ft high and 2 ft wide, were built on the soffit, two on each side and one in each end, to provide pour pockets for the next section below. Care was taken not to pour directly against the soil.

Pours were scheduled every third day, the forms being removed as soon as the concrete was strong enough to permit the start of excavation for the next 8-ft step. A clam bucket was used for dirt removal, the excavation being hand trimmed.

On each 8-ft lift, the soffit was again placed, and the reinforcing bars were 5 in. lap welded to those protruding downward from the previous section.

Hoppers were installed in the six blockouts, and the concrete was poured through a 6-in. dia elephant trunk spout. The concrete was poured well into the hopper to provide a head to insure tight joints between pours and against the upper portion of the earth bank. To help seal each joint, aluminum powder also was added—2½ grams per sack of cement. This caused expansion at sealing joints.

While still green, the concrete head in the hopper was sliced off with a piece of plywood, and these blockout openings were patched as the forms for each step were removed.

Although slightly more concrete was used than originally called for in the drawings, A. L. Zimmerman, tin mill construction superintendent, claims this step method of construction more than compensated for itself over other possible methods.

You Never Can Be Too Safe

HUNDREDS OF PEOPLE die each year from freakish accidents—the kind that couldn't happen, but do. Such a deadly accident occurred recently in a "demonstration" which killed a 27-yr-old government clerk standing a dozen feet away from the job.

A representative of the manufacturer was demonstrating a special .25-cal power tool used to pin sections of landing mat together. In loading the gun, it was fired accidentally, and the projectile struck a curved surface of the landing mat, ricocheted and struck the clerk in the chest near the heart causing instant death. Ironically, at the time the clerk was assisting a photographer film the demonstration. The safety record of powder power tools is excellent.



DOMOR
ELEVATING GRADER

▸ *Gibbons and Reed Co. of Salt Lake City, Utah* put their Domor Elevating Grader and Caterpillar No.12 Motor Grader *to work* on this North Temple Street widening project.

Material was hard packed gravel and clay base with oil mulch surface. The Domor disk cut through the dense base with little trouble and gave Gibbons and Reed Co. the *one-machine, one-operator* loading performance this traffic-maintained job required.

Domor Elevating Graders are being used by many contractors and governmental units for cutting and loading black top, asphalt and macadam surfaces. The Domor Elevating Grader and Caterpillar Motor Grader team up to make easy work of these hard-to-load materials.

Talk to your Caterpillar-Domor dealer about the many jobs the Domor Elevating Grader can handle...

Cuts and loads all material on street widening!

DOMOR
ELEVATING GRADERS
ROAD WIDENERS
SNOW BLOWERS

Ulrich Products CORPORATION
ROANOKE, ILLINOIS



A Complete Line of PERFECTION HOISTS

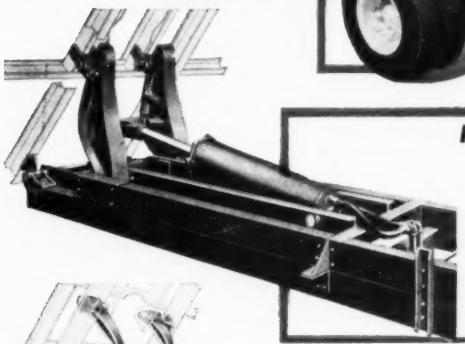
for every Make and Model Truck

All parts of PERFECTION Hoists — pumps, power take-offs, and cylinders are engineered and guaranteed by PERFECTION. Each part is carefully inter-designed with all other parts, to produce units of exceptional efficiency, power, and dependability.



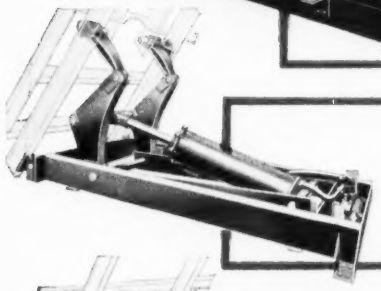
Model 7780 Telescopic

3-stage, telescopic, dual cylinder design provides tremendous lifting capacity with least weight, simple construction, and smooth operation. Direct upward lift is applied at the center of the load. For mounting on trailers with bodies up to 30 cu. yard capacity. Extra heavy-duty service.



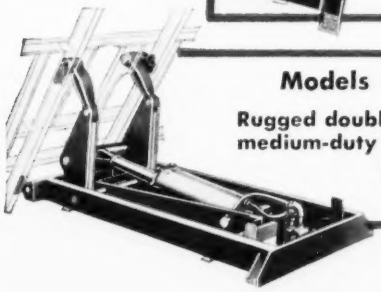
Models 727 • 827 • 1027 • 1034 Roll-A-Lift

A constant-low-pressure-type hoist that develops tremendous lifting capacity in relation to its piston displacement. Engineered for those jobs that require a rugged and powerful hoist. Four standard models cover body capacities from 6 to 20 cu. yards. Heavy-duty service.



Models 725 • 820 • 825

Compound-type, double lift-arm design, for medium and heavy-duty service. Three standard models for body capacities of 6 and 7 cu. yards.

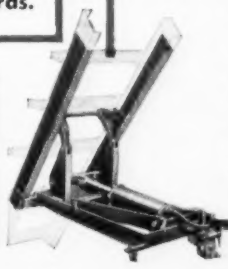


Models 615 • 715 • 715L • 720

Rugged double lift-arm hoists for light and medium-duty service. Four standard models cover body capacities from 1½ to 6 cu. yards.

Models 615B 715B • 720B

Low-mount, double lift-arm hoists for mounting with medium and heavy-duty platform and stake bodies. Three models for bodies from 9 ft. to 16 ft. long.



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Dept. M-63, Galion, Ohio, U.S.A.



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On-the-Job CONTRACTOR-LABOR RELATIONS

by LEON B. KROMER, JR.

STUDIES AND DISCUSSIONS now going on behind closed doors of the Senate and House labor committees may seem pretty remote to you. But what results may seriously affect your business. Public hearings have been completed by both labor committees and they are now considering what proposed amendments to the Taft-Hartley Act to report to the Senate and House.

Several bills under consideration will, if enacted, have a serious impact on the construction industry. You may want to write your views to the committees or your own representatives in Congress on such bills as:

S-655—Introduced by Senator Taft this bill among other things would relax the secondary boycott provisions of the present law to permit a union "to ask" workers to refuse to work on materials coming from a struck plant.

S-656—Also introduced by Senator Taft would permit unions and employers in the building industry to negotiate union shop agreements prior to the starting of a job and without an NLRB certification (CM&E April '53, p. 142).

S-1785—Introduced by Senator Smith, Chairman of the Senate Labor Committee, would exempt the construction industry entirely from the Taft-Hartley Act (see below).

HR-2545—Introduced by Representative Lucas is aimed at industry-wide bargaining (CM&E, April '53, p. 142) but would rule out contractors, organized into a local association, bargaining over wages and working conditions with the unions representing their employees.

Two bills to subject unions to existing federal anti-trust laws are before the House Judiciary Committee. One (HR-437) also contains provisions prohibiting industry-wide bargaining similar to the Lucas bill (above).

State or Federal Labor Laws?

There is serious consideration on Capitol Hill to reverse the trend and pass back to the states more control over labor relations. This is reflected, so far as contractors are concerned, in the Smith bill and part of Senator Taft's S-656 (see above). Another proposed amendment, The Goldwater-Lucas bill, would permit states to regulate strikes and control picketing regardless of conflict with Taft-Hartley.

Enactment of these bills would subject contractors to a hodgepodge of state labor laws. There is no uniformity in such laws now on the books. Thirteen states ban compulsory union membership, a few restrict picketing, prohibit jurisdictional strikes, ban boycotts. Many states have no laws regulating labor relations at all. What is legal in one state could get you into trouble in another.

Remember too, that great progress has been made to eliminate jurisdictional disputes and strikes in the construction industry through the machinery of the National Joint Board. This board was set up by the building trades unions and contractors associations after passage of the Taft-Hartley ban on jurisdictional strikes. If the industry became exempt from the federal labor law there is some question as to whether the Board would continue to function. Should this develop there would be little protection for the contractor faced with a serious jurisdictional dispute.

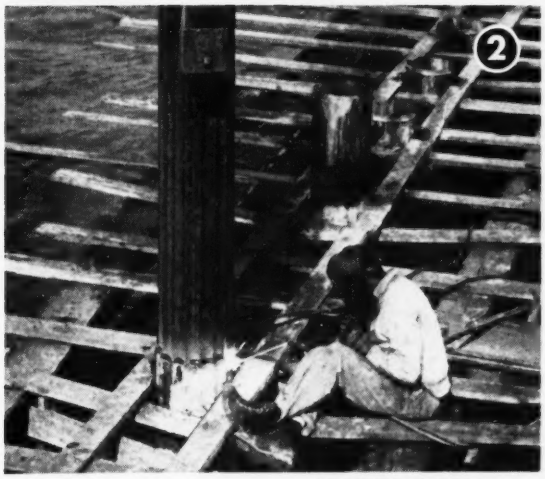
Negotiations—1953

Negotiations under way and recently completed give a key to labor-management relations and future labor cost trends in the construction industry. Not since before the war have contractors resisted so strongly wage and fringe benefit increases demanded by building trades unions.

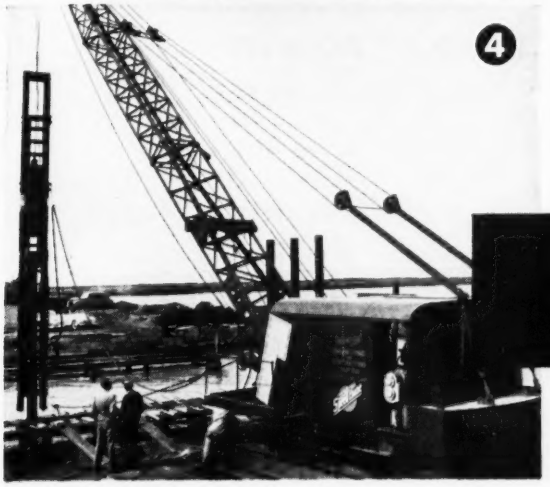
In many areas prolonged strikes

(Continued on page 210)









BIG SAVINGS ...4 WAYS with

MONOTUBE tapered steel piles

THE list of Monotube advantages is long. And you are welcome to *all* the facts . . . anytime. Meanwhile, think of the time and money you can save as a result of . . .

1. FIELD ASSEMBLY. Monotubes can be quickly, easily tailored to required length on the job, minimizing cut-off waste and saving time. Photo shows simplicity of nesting a Monotube extension with a "come-along" and two cable chokers.

2. SIMPLIFIED EXTENDIBILITY. When piles cannot be driven in one piece, Monotubes are readily welded and extended to *any* length as driving progresses. You eliminate complicated welding procedure by using a simple "girt" weld under normal driving conditions.

3. EASY CUT-OFF. With lightweight Monotubes, the cut-off operation is fast and easily accomplished. Careful use of cut-off sections as extensions minimizes waste.

4. DRIVING LONG PILES WITH SHORT LEADS. Because of Monotubes' cold-rolled strength, light weight and simple on-the-job extendibility, you can save the expense of special rigs, long leads or heavy driving equipment on tough jobs. Photo shows standard crane with short lead driving 150-ft. Monotube, in sections, 58 feet from shore.

For complete information, for more evidence that you'll be 'way ahead with Monotube piles, write to The Union Metal Manufacturing Co., Canton 5, Ohio.



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Beat down fastening costs, into steel or concrete with super-speed Ramset Jobmaster

FASTENING SYSTEM



Prove for yourself the dollar-and-cents economy and amazing time saving by doing fastening jobs like these, and many others, with RAMSET JOBMASTER and Tru-Set Fasteners. Without any obligation, your local dealer will show you, right on the job, how thousands of RAMSET users have profited, for six years, from the super-speed RAMSET SYSTEM.

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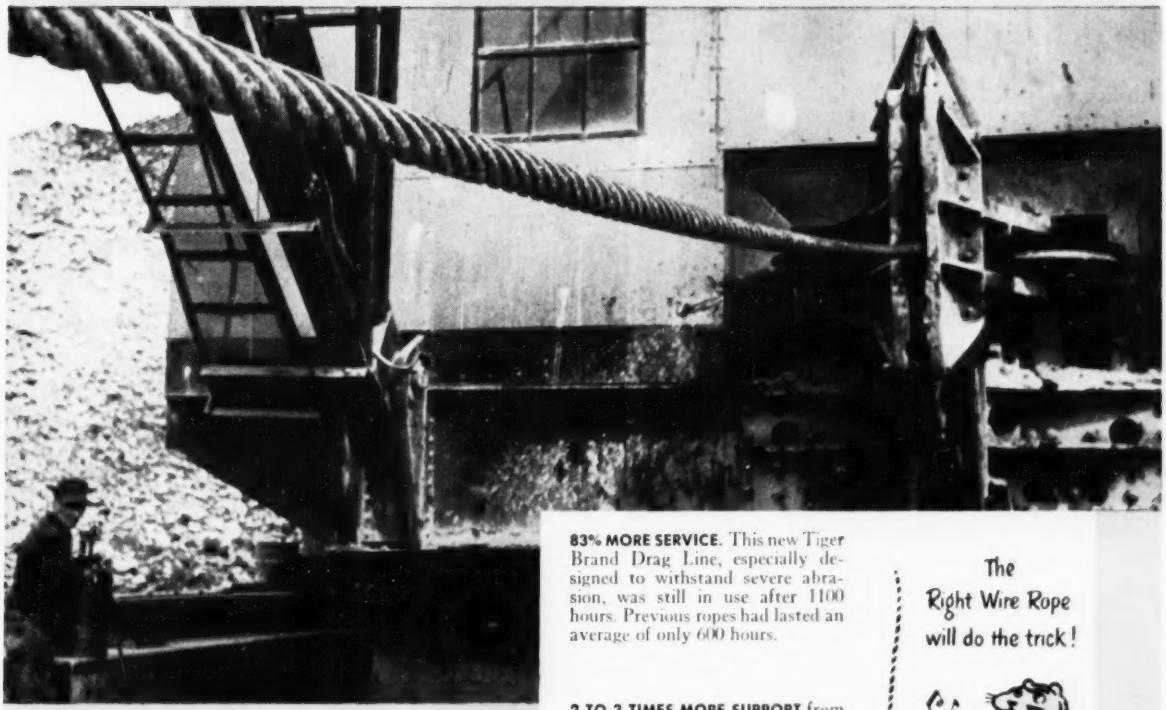


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Look at these amazing Tiger Brand records!



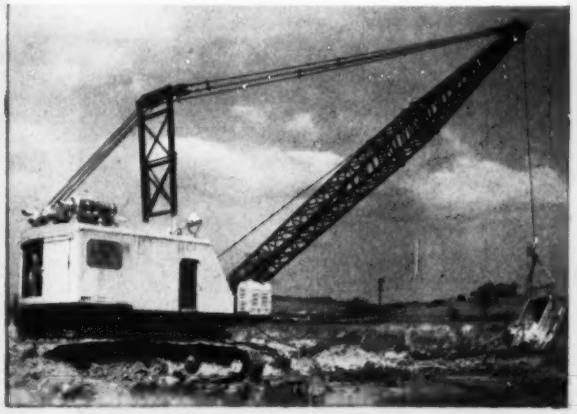
83% MORE SERVICE. This new Tiger Brand Drag Line, especially designed to withstand severe abrasion, was still in use after 1100 hours. Previous ropes had lasted an average of only 600 hours.

2 TO 3 TIMES MORE SUPPORT from these Tiger Brand Boom Supports. Interwoven ends distribute vibration over a long section of the rope instead of letting it concentrate at one point. As a result, these ropes last longer and cut boom support costs as much as 50%.

• Tiger Brand Wire Ropes are designed for the particular type of job on which they are intended to work. They have the needed balance of strength, toughness, flexibility and wear resistance. The quality is carefully controlled, from the iron mines to the finished product, and by our *own* engineers. Rigid tests and inspections at every step of the way guarantee a rope that matches the design specifications.

In addition, we maintain a staff of experienced Wire Rope Engineers to advise customers the correct rope to use, so that they get the best rope for every job.

Consult these men the next time *you* need rope. They can help you get longer service and cut rope costs.



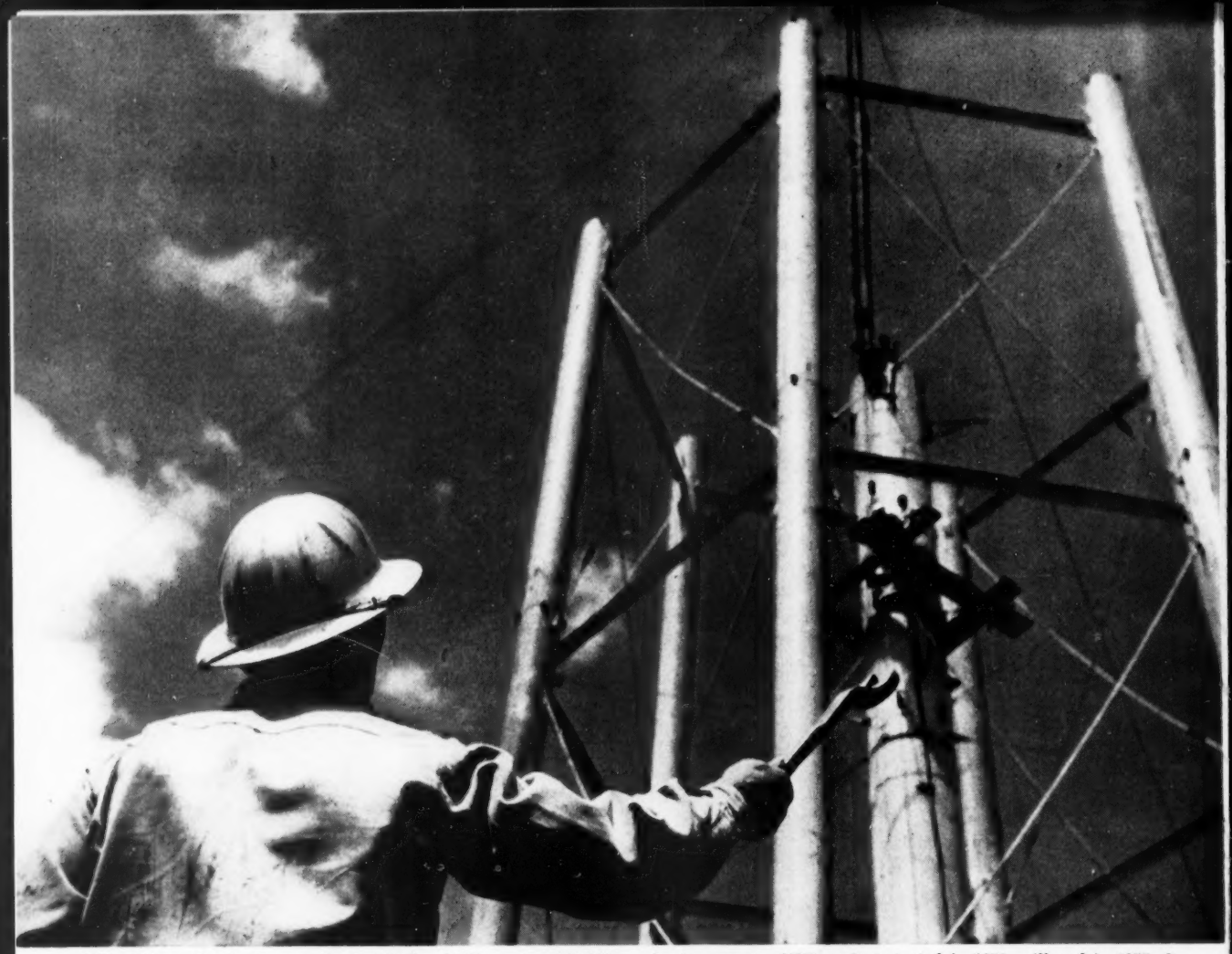
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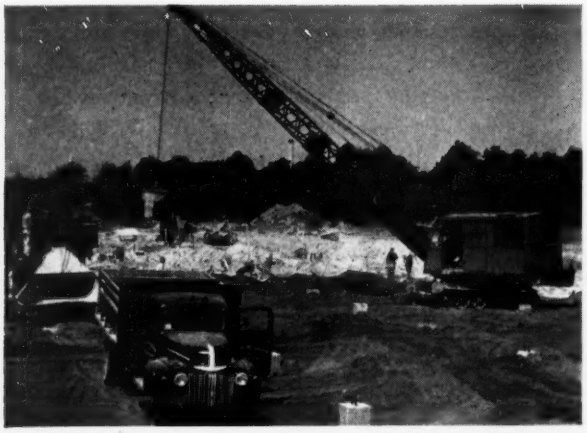
UNITED STATES STEEL



$650-million atomic energy plant at Paducah, Ky. gets a 250,000-gal. capacity water tank. Hammond Iron Works, one of the 100 sub-contractors on the job, is the erector. Sub-contractors do much of the work, but majority of purchasing is handled by McGraw purchasing agents. AEC project started in 1951, will end in 1955. On long jobs like this, specifications stay open, necessitating regular sales calls. It can be done—over 300 CM&E advertisers are making sales calls via "METHODS."



Guards and gates keep out those who aren't on official business. This makes it tough for salesmen to make normal calls. Red tape entangles your salesmen on many government projects. And last year 29% of total contract awards were for federal projects. Gates and guards don't keep sales messages in CM&E from reaching McGraw's men each month – nor the many other subscribers working on government projects. Over 3600 paid subscriptions of CONSTRUCTION METHODS & EQUIPMENT go to men on government payrolls responsible for this work.



$10-million worth of equipment is now at work for F. H. McGraw Company. During 1952 they purchased $3-million worth of machinery . . . used 660 trucks and hauling units; 65 power shovels and cranes; 11 graders; 78 compressors; and 86 bulldozers and scrapers. Terrific punishment taken by this machinery cost McGraw $1,500,000 during 1952 for replacement parts. Minor maintenance and repairs are done by their own force. Because of this cost, operation and maintenance reports from the field have a big influence on purchase of new equipment.

For F.H. McGraw & Co. . . . one contract for $650-Million

During 1952 Spent $57-Million for Materials . . . $3-Million for Equipment

F. H. McGraw & Company of Hartford, Conn., catapulted from a sizeable outfit to one of the nation's largest prime contractors. The shot in the arm that created this volume was the $650-million AEC contract (28 times larger than their average annual business for the previous 22 years) for an atomic plant at Paducah, Ky. In addition to work on the atomic plant (a 4-year project), McGraw also constructed last year: steel mill additions in Provo, Utah . . . sewage plants at Altoona, Pa. and Providence, R. I. . . . power plants at East Chicago, Ind. and Norwich, Conn. . . . chemical plants at Tacoma, Wash. and Seneca, Ill. . . . multiple housing units at Hartford, Conn. . . . warehouse and food processing plant at Montreal . . . commercial buildings in Quebec City, Quebec, and installed production machinery at Hammond and Lafayette, Indiana.

Each of these projects required (1) selecting the proper construction specialists to supervise the job; (2) the assembling of the right combination of McGraw's available equipment; (3) the purchase of new construction equipment and materials.

Last year McGraw's 260-man supervisory staff had a hand in the purchase of $57-million worth of materials and $3-million worth of equipment for these jobs. All purchases were through assistant buyers at various locations, under the control of the director of purchasing. But even though the buyers sign the orders, many influences from the field staff come into play before final purchase.

But the need of the "right" construction specialists at each job makes it difficult for your salesmen, and those of your distributors, to get to know and call on the many buying influences as they move from job to job. This is where CONSTRUCTION METHODS AND EQUIPMENT can help you. In F. H. McGraw & Co. alone, 25 men, in 9 states, receive CM&E each month.

Last year, CM&E delivered, on the average, 3975 sales messages for 159 advertisers each month to McGraw men—an impossible personal selling task.

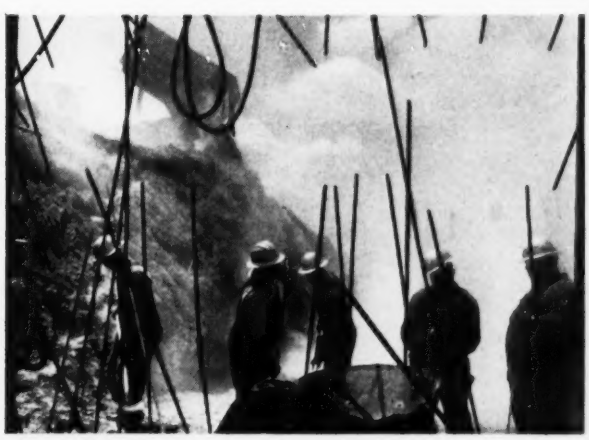
F. H. McGraw & Company's swift growth, a characteristic of construction, points to an important sales problem.

You never know today who your big customers will be tomorrow. That's why it's necessary to keep in contact with all customers and prospects at all times wherever they are. "METHODS" can do that for you. That's why more and more advertisers are adding CONSTRUCTION METHODS AND EQUIPMENT to their schedules. So far this year 57 *new* advertisers are using the pages of "METHODS" to deliver their sales messages. Why don't you? Call your nearest CM&E salesman or write to . . .

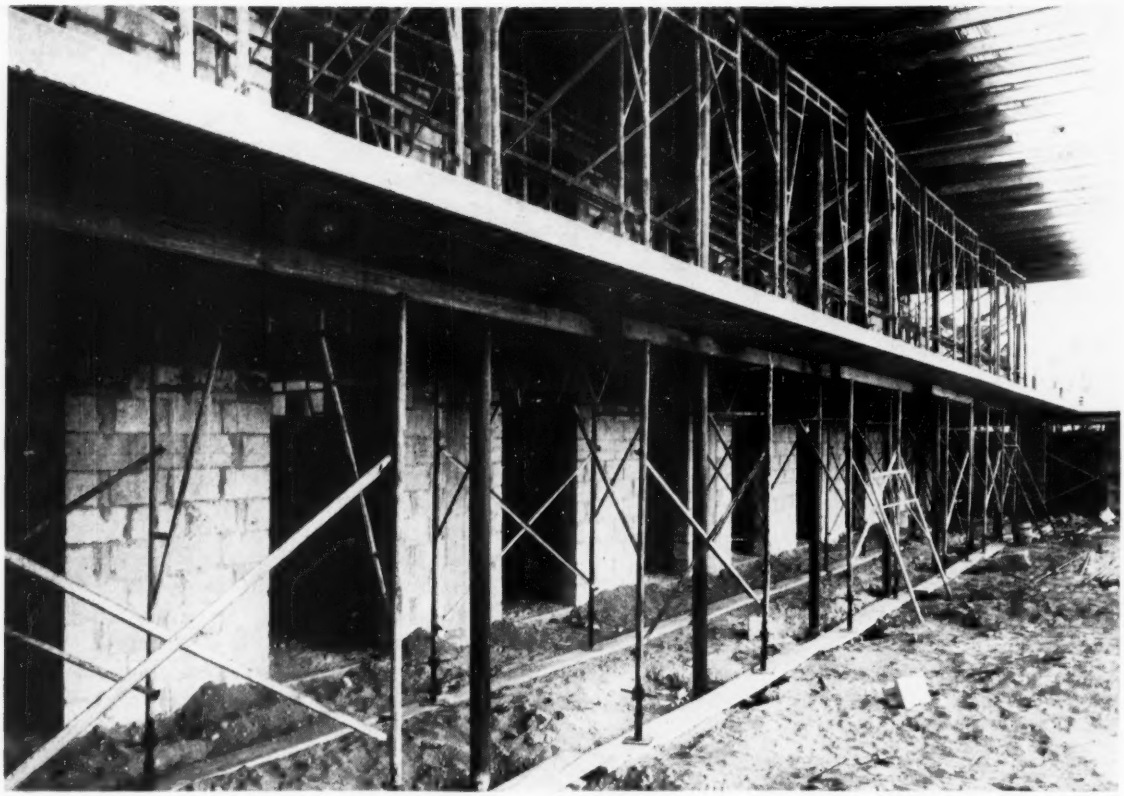
CONSTRUCTION
METHODS AND EQUIPMENT
A McGRAW-HILL PUBLICATION
330 WEST 42nd STREET, NEW YORK 36, N.Y.



$57-million was spent for materials in 1952. This batching plant at AEC project helped produce 225,000 cu. yd. of concrete. Grand total for construction materials at all projects includes: 50,000 tons of steel; 16-million bd. ft. of lumber; 94,500 ft. of wire rope; 2,050 tires; 818 batteries; 1,120,000 lbs. of welding rod and 7,230,815 gallons of gasoline, fuel and lubricating oil. With owner's permission, materials specifications are sometimes changed due to field conditions. This business can be yours – if field men are familiar with your products.



Directing McGraw's 17,500 workmen, and assembling the "right" materials and the "right" equipment for each job are responsibilities of McGraw's 260-man supervisory staff. If the materials and equipment are to be yours, influencing these men is important. You can – through CM&E. Monthly 25 subscriptions go to McGraw's staff in 9 states to the president, vice-presidents, project manager, engineers, superintendents, foremen, and a master mechanic. Reach these 25 McGraw men, and "METHODS'" 31,000 other buying influences by advertising in CM&E.



COST-CUTTING TECHNIQUE in concrete shoring includes use of sectional steel scaffolding, scaffolding I-beams and plywood panels. The contractor reports that no fastenings or ties are needed with the "Trouble-Saver" sectional shoring supplied by the local distributor of Patent Scaffolding Co. Whenever I-beams aren't available, 2x6, or larger, timbers can be used.

Scaffolding Helps Speed the Job



WORKING UNDER TEMPORARY LIGHTS and scaffold planks, these men handle records on all baggage in and out of Grand Central Terminal. TubeLox scaffolding permits business as usual. In this instance, it was purchased outright instead of rented from Chesebro-Whitman Co., Long Island City.

TWO NOVEL APPLICATIONS of scaffolding are shown here—one in Florida and one in New York. At the Blue Horizon Hotel in Miami, contractor Morris Burk erected scaffolds, topped them with aluminum I-beam outriggers, and thus supported the continuous deck for second-floor cabana porches. When this pour had set, a second string of scaffolds was used to support a cantilevered roof, eliminating a good deal of forming, shoring and stripping costs.

In Grand Central Terminal, New York, it was business as usual for the men in the general baggage room (left), while tradesmen worked undisturbed overhead to replaster a curved ceiling, paint it and install new fluorescent lights. Only premium wages needed were for two hours' work setting up scaffold and planks and running temporary light stringers; an hour's work later for dismantling.

YOU'LL LIKE THESE HEILINER *Advantages*



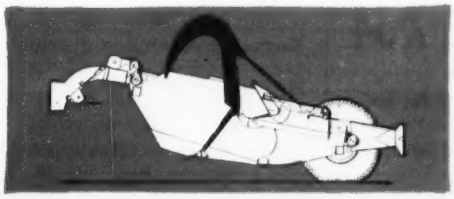
INTERCHANGEABLE SCRAPER AND WAGON

Double the utility of your Heiliner, yet reduce your equipment investment . . . use the Heiliner Scraper and Dump Wagon interchangeably with your Heiliner 2-wheel tractor.



"TILTING FLOOR" SCRAPER with POSITIVE FORCED EJECTION

This is the simplest type of forced ejection known. The floor of the bowl is hinged back of the cutting blade and simply tilts up to a 75° angle by means of a positive ram action. The load is forced out the wide front opening, while even the stickiest material is scoured from the sides and stationary back of the bowl. Material is dumped fast and clean. There's no leftover yardage to haul back to the pit.



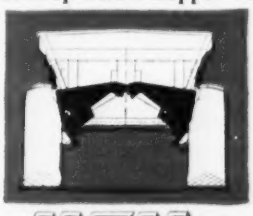
THE RIGHT POWER PROPERLY APPLIED MEANS LOWEST COST PER YARD

Whether you're using the Scraper or the Wagon, your Heiliner employs the *exactly right* power, correctly applied at the point of action to assure the mechanical efficiency which keeps cost per yard at the minimum. Heiliner's "power with a purpose" *utilizes* horsepower instead of wasting it . . . and horsepower saved by more efficient design cuts costs on every operation.

Get complete details on *all* Heiliner advantages from your nearest Heil Distributor.

HIGH CLEARANCE WAGON WITH FAST-OPENING DOORS

The Heiliner extra heavy-duty wagon has foolproof clam type doors which open fast and clean, with the unit moving or standing. Equalized cable action plus interlocking gears at the trunnion bearings force the doors to operate in unison. Doors drop back to closed position by gravity. There's no chance of bogging down with Heiliner high-clearance wagons because doors do not drop below hopper body level.



THE HEIL CO.

Dept. 263

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THIS *Washerless* COUPLING

has no equal for convenience, efficiency and dependability in every high or low pressure hose service . . . steam, gas, air, water, hydraulic.

"GJ-BOSS" *Ground Joint Female Coupling*, STYLE X-34

The original ***washerless*** hose coupling, with a reputation for safe, reliable service under hard use and rough handling. Ground joint union between stem and spud provides leakproof, trouble-free seal. All parts malleable iron or steel, rustproofed. Furnished with "Boss" Offset and Interlocking Clamps. Sizes ¼" to 6", inclusive.

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SALES AND ★ SERVICE ★

News of manufacturers' activities designed to assist the reader in the purchase of machinery, equipment and materials and help him obtain quick service on parts and maintenance.

Distributor Appointments

Euclid Road Machinery Co.: Euclid-Memphis Sales, Inc. announce the establishment of a subsidiary firm in Arkansas to provide better service for Euclid owners in the state. The new firm is known as Euclid-Arkansas, Inc., with headquarters at 702 W. Second St., North Little Rock. It will provide sales and service throughout Arkansas with the exception of six counties—Mississippi, Cross, St. Francis, Lee, Phillips and Crittenden.

Cleco Div., Reed Roller Bit Co.: Has announced the appointment of F. C. Bishop Co., Inc., P. O. Box 21, Sta. H, Buffalo 14, N. Y.; Flood and Calvert, Inc., 2314 Strand, Galveston, Tex.; and Paterson Machinery Co., 309 Seventh Ave., S., Nashville 4, Tenn., as distributors for Cleco products in their areas.

Gardner-Denver Co.: Robert H. Pearson, who has been associated with this company for 37 yr, has retired as a vice-president and will move to Denver to assume management of Air Rentals, Inc., a newly formed organization which will distribute Gardner-Denver equipment and several allied lines of equipment and supplies for mining and construction.

Wood Mfg. Co.: Announces the appointment of Power Equipment Co., Knoxville, Tenn., as distributor for eastern Tennessee, and Cary Hall Machinery Co., Salem, Va., for Virginia.

Bucyrus-Erie Co.: Has appointed Euclid-Arkansas, Inc., 702 W. Second St., North Little Rock, Ark., as distributor for its products.

Koehring Co.: The appointment of Ray C. Call Co. as the new distributor for West Virginia has been announced. Located in South Charleston, the Call Co. will handle the complete line of Koehring products, as well as equipment manufactured by the three Koehring subsidiary companies: Parson Co., C. S. Johnson Co., and Kwik-Mix Co.

Yale & Towne Mfg. Co.: Announces the appointment of the Materials Handling Products Corp., 2704 Erie

(Continued on page 184)

SPEED where it saves you most

Here a Bucyrus-Erie drill pounds out hole in a rock pit. Derrick head shock absorber protects machinery from vibration — reduces cable wear by keeping shock loads down. A Bucyrus-Erie "first" the rubber shock absorber is the most successful yet devised.



Bucyrus-Erie blast hole drills have a nation-wide record for ramming holes down fast—and cheap. A brief rundown shows why—

Big 5⅝ to 12-in. holes—quick— The right balance of tool travel distance, tool weight, and blows per minute — combined with an unmatched rock shattering snap at the impact point — put these rigs "holes ahead" in penetration speed.

Quick moves — Long, sure-footed crawlers mean fast, easy rolling over rough ground — positive traction up 30 percent grades.

Rapid set-ups — Hydraulic leveling jacks (standard on 50-T; optional on 29-T) eliminate elaborate ground preparations, blocking and cribbing. Built-in stabilizing jacks (on the 22-T, 27-T and 29-T machines) provide time-saving 3-point setups even under adverse ground conditions.

Close-grouped controls — Easy handling levers are positioned close together for convenient reach. A driller can run this rig at top speed for long periods without slow down. Built-in tool wrenches (on all except 22-T) safely speed tool changing.

For fast, profitable operation standardize on big hole, fast hole Bucyrus-Erie drills. Four models—5⅝ to 12-in. hole capacities.

5B53

BUCYRUS-ERIE COMPANY

South Milwaukee, Wisconsin

Blvd., E., Syracuse, N. Y., as distributor of Yale industrial truck products.

Symons Clamp & Mfg. Co.: Announced it has granted to Concrete Forms, Inc., of Portland, Ore., exclusive rights for assembly, sale and rental of the Symons forming system in the Pacific Northwest, including Idaho, Washington, Oregon, Montana, Western Canada and Alaska.

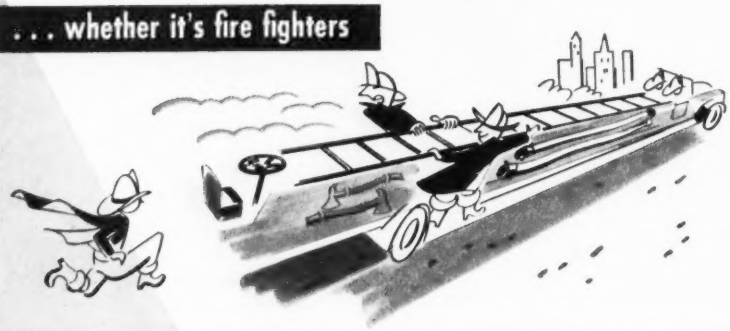
Nordberg Mfg. Co.: Appointment of King-Knight Co., San Francisco, Calif., as distributor for Nordberg 4FS diesel engines in central and northern California has been announced.

St. Anthony Machine Products Co.: A new distribution program for the Stampco Roll-O-Hoist — formerly handled exclusively by one national sales company—will make sales franchises for the equipment available to qualified distributors in many new marketing areas.

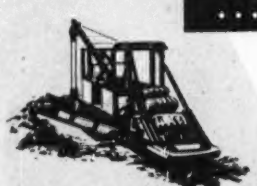
Iowa Mfg. Co.: Has appointed Euclid-Arkansas, Inc., North Little Rock, Ark., as distributor for its products.

It takes a FULL team

. . . whether it's fire fighters



. . . or digging equipment



1. This is for big jobs



2. This is for medium jobs



3. Sherman for all other jobs

On many excavating jobs the use of big equipment is costly and time-consuming. The Sherman Power Digger is designed so that you get all the advantages of power digging on these jobs. Thousands of users have proved that the Sherman Power Digger reduces costs. Write today for descriptive literature U43.

Designed, Engineered and Manufactured Jointly by
SHERMAN PRODUCTS, Inc.
Royal Oak, Michigan
WAIN-ROY CORPORATION
Hubbardston, Mass.

•

Patent No. 2,303,825
Other patents pending

Sherman
PRODUCTS, INC.
ROYAL OAK, MICHIGAN

On the Sales Front

International Harvester Co.: Chauncey L. Sears has been appointed manager of the company's Harrisburg motor truck district sales operation, succeeding M. H. Roth, who has been transferred to Seattle, Wash., in a similar capacity. J. H. Baker has been appointed manager of the company's Columbus, Ohio, motor truck district sales office.

Patent Scaffolding Co., Inc.: Has moved into its new branch office and warehouse at 7140 N. Miami Ave., Miami, Fla.

Timken-Detroit Axle Co.: Appointment of A. E. Wilson as a sales engineer has been announced.

Transport Trailers, Inc.: Announces the appointment of H. W. Jahn as assistant sales manager.

Osgood Co. and General Excavator Co.: Announce the appointment of George N. Volz as division sales manager for the northwestern states and provinces of Canada. Working with Mr. Volz will be John Bernhardt, newly appointed division service representative, who will make periodic check-up calls on Osgood-General owners in the territory. Frank Johnson, division sales manager formerly covering the 11 western states, will concentrate his efforts in California, Nevada and Arizona, with headquarters at the recently opened West Coast branch at 326 Shaw Rd., S. San Francisco, Calif.

Homelite Corp.: Announced the appointment of E. W. McClellan, former manager of Homelite's Buffalo office, as midwest regional manager. He has opened a new office at 120½ S. Grove Ave., Elgin, Ill. The following changes in branch and district managers also have been announced: Francis "Bud" Darrow, former assistant to Mr. McClellan in Buffalo, is appointed manager of the Buffalo district office; Ted Skroch, former manager of the Grand Rapids, Mich., branch office, is manager of the Indianapolis district office; Harold E. Wiersum was made manager of the branch office in Grand Rapids; and James W. Thompson, former manager of the Indianapolis district office, will take over the Charlotte, N. C., district office.

Wayne Div., Gar Wood Industries, Inc.: D. J. Byrd has been appointed division assistant sales manager, in which capacity he will specifically be responsible for Gar Wood's field operation.

Universal Concrete Pipe Co.: W. A. "Bill" Kratzert, veteran Florida assistant state highway engineer, has

(Continued on page 186)

"Made of U·S·S COR-TEN *...so what?"*



...So this! It's got guts!

● Your equipment is supposed to be worked—not laid up. And equipment like this Allis-Chalmers motor scraper, built with tough, durable U·S·S High Strength Steels, has the stamina to *stay on the job.*

Charge a bulldozer into a boulder—wallop a truck with a ten-ton load of slag—grind a bucket through jagged rocks. Mister, if the equipment is built with U·S·S High Strength Steel it will take that kind of abuse—day after day—even at sub-zero temperatures when ordinary steel would fold up.

So what? So your maintenance costs are lower. You have far less down-time to foul up operations. Replacement costs are lower, too. And you do more work in less time . . . that's what!

U·S·S COR-TEN, U·S·S TRI-TEN and U·S·S MAN-TEN steels resist wear, abrasion and impact. They have a yield point 50% higher than ordinary steel. And they resist corrosion, too.

The big fact, however, is that you can give equipment these properties *without increasing weight.* Or, you can use U·S·S High Strength Steels in lighter sections and actually *reduce weight* without reducing the stamina and ruggedness you had before.

We'll tell you more if you'll write to our nearest District Sales office. And our engineers will be glad to help you apply these famous steels to—

Give your equipment the stamina to stay on the job.

UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • NATIONAL TUBE DIVISION, PITTSBURGH
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S HIGH STRENGTH STEELS

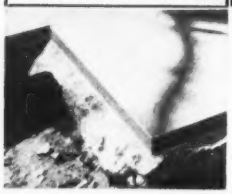
USS

3-1005

UNITED STATES STEEL

New Savings In . . .
CONSTRUCTION and MAINTENANCE

Contractors . . . Highway Officials . . . All Say . . .
"CONTRACTION JOINT SAWING IS A MUST!"



Wedge-type cut eliminates spalling and settling in highway repair and underground services.



Cutting provides superior contraction joints at lower cost . . . permits laying concrete in long sections without interruption.



Floor cutting in industry for machine installation.

- Provides smoother-riding, better appearing surface.
- Reduces quantity of sealing compound used up to 65%.
- Completely eliminates joint spalling and deterioration.
- Permits better sequence of paving operations, at lower cost.
- Inhibits water infiltration and prevents sub-base erosion.
- Makes possible earlier application of curing compounds.

Only Tri-Line Gives All These Advantages!

1. Exclusive three-wheel undercarriage prevents tilting, eliminates blade bind and excessive wear.
2. Direct-acting hydraulic control permits quick, effortless depth-of-cut adjustments.
3. Maximum maneuverability afforded by tricycle design. Turns within its own length without jockeying.
4. Sturdy construction means less vibration, less blade wear. A full 700 pounds of ruggedness.
5. Thirty-gallon tank provides water when supply is inconvenient. Can be attached to hydrant if desired.
6. Vital engine parts protected from blade spray. No shut-downs due to engine "drowning."
7. Abundant power from the 13 h.p., two-cylinder Wisconsin air-cooled engine for full-depth, full-speed cutting.
8. Double-ended arbor permits cutting on either side of the machine . . . in places normally inaccessible.
9. Tri-Line blades are double-bonded, scientifically designed for fast, clean-cutting operation.





WRITE FOR FREE BROCHURE

Manufactured By
Tri-Line CO.
933 Carroll St. • Racine, Wis.

FUNK *Special*

POWER UNIT CLUTCHES *and* TAKE-OFFS



This right angle drive and heavy-duty clutch unit is only one of many engineered and manufactured by FUNK. There are types and styles to fit almost any requirement for shaft speed and installation space. They are designed to fit any standard SAE flywheel housing or Ford Industrial Engine. Our engineers will be glad to work with you on any special power problem.

FUNK Products include:

Straight Power Take-Off Clutches
Gear Reduction Take-Offs
Right-Angle Take-Offs
Front End Take-Offs
Jack Shaft Extensions
Ford Tractor Conversion Kit, changes to 6 or V-8 engines, doubles the power at 1/3 the cost.

FUNK AIRCRAFT CO.

3303 Airport Drive **Coffeyville, Kansas**

SALES AND SERVICE . . .

Continued from page 184

joined the company as state engineer representative. He will serve the network of Universal plants and offices in Florida, which include Miami (Dania), St. Petersburg, Tampa, Tallahassee and the affiliated Florida Concrete Pipe Co. at Ocala.

Galion Iron Works & Mfg. Co.: Hal J. Moody has been appointed district representative on motor graders and rollers in Louisiana, Mississippi, Alabama and Arkansas. J. H. Tiller has been named assistant sales manager for the company.

Highway Equipment Co., Inc.: The appointment of William W. Kingman as general sales and advertising manager has been announced.

Pioneer Engineering Works: Donald B. Palmer, Jr., has been appointed bituminous sales engineer and will cover the sales of asphalt plants and pavers and stabilizer plants in the United States and Canada from the home office in Minneapolis.

Gardner-Denver Co.: Has announced promotions and new titles for personnel in the sales department—C. M. George has been named sales administrator; O. C. Knapheide, Jr., becomes sales manager of the Oilfield & Industrial Division; C. H. Rieman becomes sales manager of the Mining and Contracting Division. In addition, J. R. Affre has been named sales supervisor of the Oilfield & Industrial Division, E. A. Linneman of the Contracting Division; and J. A. Caverly of the Mining Division.

Koehring Co.: Recently announced the appointment of E. J. Hartlein as district representative for the company's Central-Northwest sales territory including Minnesota, North Dakota, South Dakota, Nebraska, Iowa and Kansas. He succeeds Jack Miller, who retired earlier this year.

Baker-Lull Corp.: Has appointed J. Irwin (Jim) Moore as southern states district representative. Moore will service Baker-Lull distributors in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, New Mexico, Oklahoma, Texas and Tennessee.

Caterpillar Tractor Co.: Appointment of two field representatives to contact west coast manufacturing accounts has been announced. Howard K. Van Schoick will service accounts in the Washington and Oregon area, and Robert E. Sterrett will contact manufacturers in southern California and Arizona.

The Texas Co.: T. R. Ellis has been appointed assistant manager of the Asphalt Sales Department with headquarters in New York. Ellis was

formerly manager of the New York division of the Asphalt Sales Department and was succeeded in that position by H. J. White. J. A. Morrow, formerly salesman in North and South Carolina, will replace White as representative at Jacksonville.

In the Main Office

Warner Electric Brake & Clutch Co.: Steven P. J. Wood has been elected president. He was formerly a vice-president of the company.

Universal Mfg. Corp.: J. A. Kirkpatrick, formerly vice-president and general manager, has been elected president. The board of directors also announced the election of Bernard W. Carbeau as vice-president, and Robert L. Carbeau, treasurer, as assistant to the president.

Sprague & Henwood, Inc.: James A. Ross, head of the company for 30 yr, has been made chairman of the board, and in this capacity will remain active with the company. Adrian E. Ross, formerly assistant to the president and chief engineer, has been elected president, and William J. Schank, formerly vice-president, has been made senior vice-president and general manager.

Lessmann Mfg. Co.: Howard W. Dodson has been appointed vice-president. He is also vice-president in charge of production of the United Steel Barrel Co., which recently purchased Lessmann.

Hercules Powder Co.: Albert E. Forster was elected president of the company and chairman of the executive committee.

Pioneer Engineering Works, Inc.: The board of directors elected Oscar J. Ellertson to the presidency to succeed Melvin Ovestrud, who has retired. He was also elected to the board of directors.

Allis-Chalmers Mfg. Co.: W. A. Roberts, president, was re-elected to the board at the annual meeting of shareholders last month. Frank Mussell was re-elected vice-president and general sales manager, tractor division.

Special Mention

Symons Clamp & Mfg. Co.: Has announced the awarding of a contract to Rock Island Lumber Co., a subsidiary of Weyerhaeuser Timber Co., to manufacture its patented plywood panels used in the construction of concrete walls.

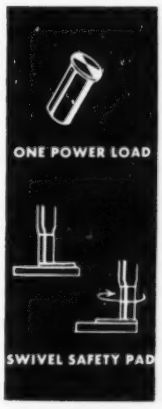
Eutectic Welding Alloys Corp.: Has formed a Canadian company to be known as The Eutectic Welding Alloys Co. of Canada, Ltd. L. D. Richardson, divisional sales manager, has

NEW
DRIVE-IT 320
with
BREAK-OPEN ACTION



MAKES SPLIT-SECOND FASTENING
TO CONCRETE OR STEEL... EASIER THAN EVER

BREAK-OPEN ACTION for fast, easy loading and extraction makes new **DRIVE-IT** "320" the easiest operating stud driver on the market. This smooth-working action means a greater saving to you on concrete or steel fastenings.





Here are other exclusive **DRIVE-IT** features that make it the best tool available:

ONE POWER LOAD. No need to buy and stock various strength power loads with exclusive **DRIVE-IT** power control method.

AUTOMATIC EXTENSION BARREL allows fastenings inside junction boxes and other recesses. No need to buy and attach extra barrels.

SWIVEL SAFETY PAD of tough rubber and steel protects operator and permits fastenings next to walls.

SAFE two-handed firing sequence and length of tool offer maximum protection. Can't be discharged accidentally or in mid-air.

DRIVE-IT pins are listed and approved by Underwriters' Laboratories.

DRIVE-IT
the original
POWDER ACTUATED TOOL

MAIL NOW FOR MORE INFORMATION
POWDER POWER TOOL CORP.
7526 C S W. Macadam Portland 1, Oregon
☐ We would like a free demonstration of DRIVE-IT
☐ Please send literature on new DRIVE-IT 320
NAME
ADDRESS
CITY STATE





"She'll be coming 'round the mountain"

H&B ESTABLISHED 1867

And on this particular mountain, in beautiful New England (Vermont to be explicit), she'll be coming 'round the mountain on a safe, smooth, resilient road—mixed and laid by a Moto-Paver. The upper illustration shows a Moto-Paver, owned by the Lambert Construction Co. of White River Junction, laying 2½" of bituminous concrete to 22 foot width for the Vermont State Highway Department.

Moto-Paver does the complete mixing and laying job—in one continuous operation. It uses beach sand, gravel, crushed stone or slag aggregates, and tars, cutback asphalts, road oils, emulsions or other bituminous materials. Road speeds up to 25 mph make possible quick moves from job to job.

For specifications and complete information on the Moto-Paver or any other type of asphalt plant, see your local H & B distributor or write for Bulletin MP 49.

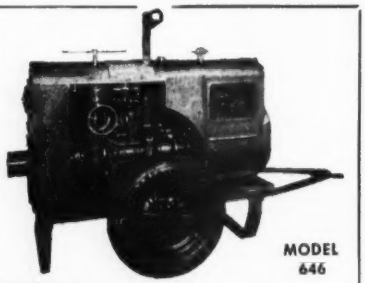
HETHERINGTON & BERNER INC.

Engineers—Manufacturers

735 Kentucky Avenue — Indianapolis 7, Indiana

IT'S HERE AT LAST!

A sure way to save money on your next wellpoint job is to get Foundation's new 4" 1000 GPM capacity pump . . . sturdy, compact, for medium and small wellpoint jobs. Why use big 6" and 8" pumping units and pay big fuel bills when you can use this efficient 4" pump, tailor-made for the job? Economical to operate and maintain . . . easy to move around.



MODEL 646

4" unit powered by 4-cyl. gas engine

Foundation Equipment CORPORATION

Long Island City 1, N. Y. — 37-11 10th St — EXeter 2-1100

Chicago, Illinois — 2608 W. 111th St — Hilltop 5-8282

RENTAL — SALES

Write for Literature

SALES AND SERVICE . . .

Continued

been promoted and in addition to his divisional duties will act as general Canadian sales supervisor. Michael Doody will supervise the organization in Ontario, Quebec and the Maritimes.

The Timken-Detroit Axle Co.: Has announced an addition to the company's plant in Kenton, Ohio, which will increase the size of that plant by approximately 40%.

American Pipe & Construction Co.: Will build a new plant in Alameda County, Calif. The firm, which manufactures reinforced concrete sewer, storm drain and pressure pipe, has bought a 57-acre site near Alvarado for the plant. Occupancy is scheduled for late summer.

Multipack, Inc.: Has announced the purchase of the Multiplex Machinery Co., Elmore, Ohio, which will become a subsidiary division of the new corporation.

S. K. Wellman Co.: Has now completed the move into its new Bedford, Ohio, plant. In this present location is centralized all of the equipment formerly housed in three separate plants and warehouses, plus improved production machinery.

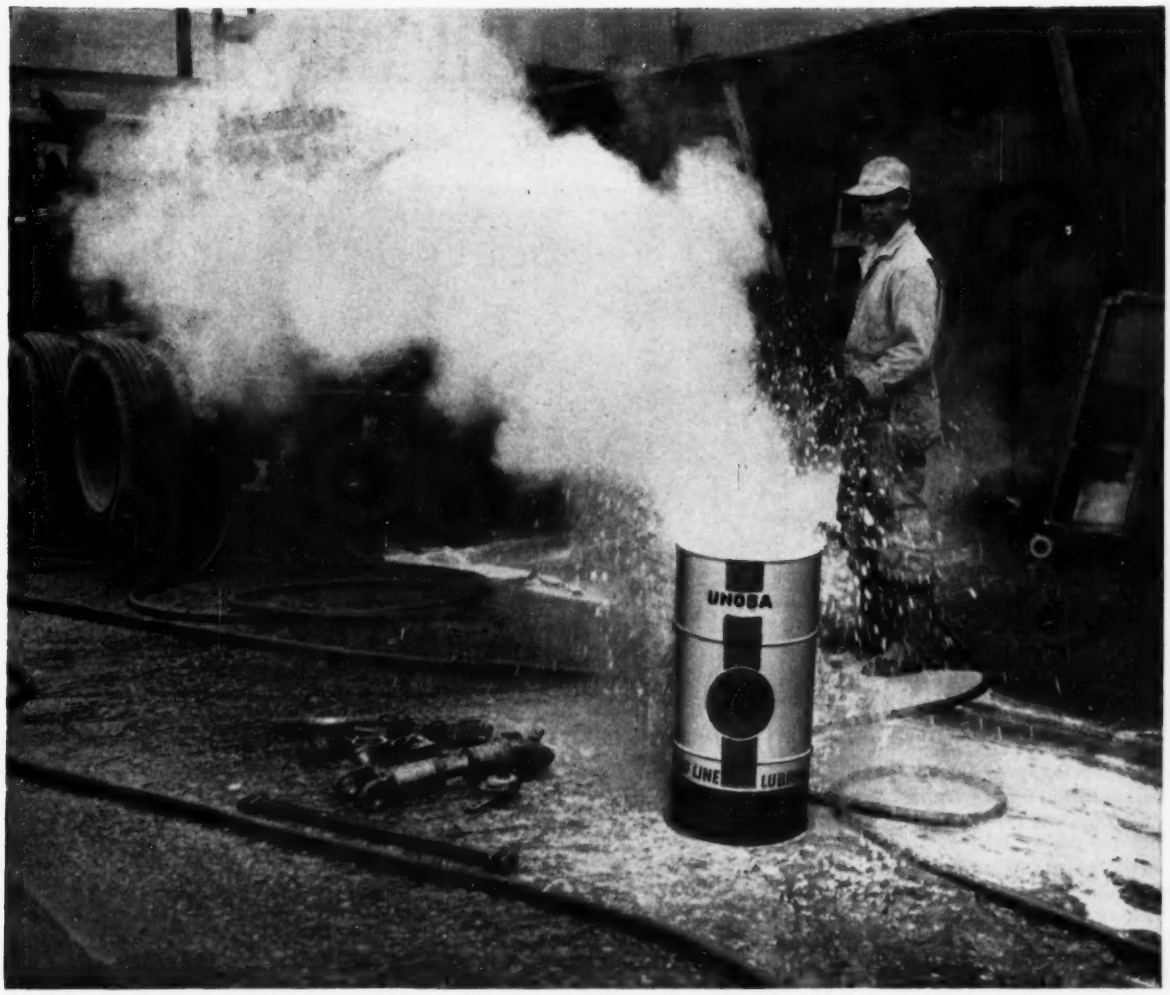
Black & Decker Mfg. Co.: Construction has been started on a $2,000,000 addition to the company's Hampstead, Md.. branch plant. The 126,800 sq ft addition, which will double the size of the present plant, is scheduled to be completed by November; but partial operations will commence as early as September.

Association Activities

New York Building Congress, Inc.: C. George Dandrow, vice-president of Johns-Manville, was re-elected president at the thirty-second annual meeting. Other officers elected are: vice-presidents—Robert Allan Jacobs, A. E. McKenzie, Howard McSpedon, A. Walter Nelson, and H. C. Turner, Jr.; treasurer—Otto L. Nelson; secretary—Vernon Jarboe, and chairman of the Finance Committee —Charles A. Selby.

The Moles: Richard E. Dougherty, consulting engineer, was elected president at their annual meeting last month. Other officers elected were: George F. Ferris, first vice-president; William A. Durkin, second vice-president; Theodore M. Avery, sergeant-at-arms; Harry T. Immerman, secretary; and Edward G. Johnson, treasurer.

Wire Reinforcement Institute: At the 23rd annual meeting, Donald M. Schmid, assistant general manager of sales, Truscon Steel Div., Republic Steel Corp., was elected president.



How an empty barrel proved

UNOBA RESISTS STEAM!

"Last week I told one of my men to steam out an empty UNOBA barrel for use as a trash container. In about an hour he came back complaining that it couldn't be done. He had used the steam cleaner, with chemicals, for over 30 minutes without visible success. The UNOBA, though slightly lighter in color, was still clinging to the sides of the barrel, and still looked and felt good enough to use. You see, we've been sold on Union's products by their performance."

In this unplanned "test," William Gardner, Equipment Superintendent for J. H. Welsh & Son, Contracting Company, of Phoenix, Arizona, proved again that UNOBA grease resists *extremes* of temperature and moisture.

Like other leading firms, Welsh & Son have found through experience that UNOBA's amazing ability to cling to metal gives outstanding protection against rust and corrosion. And multi-purpose UNOBA has saved them time and money by reducing grease inventories and eliminating the use of the wrong lubricants on expensive equipment.

Give *your* equipment and machines the dependable protection of multi-purpose UNOBA grease.

OFFICES: LOS ANGELES: Union Oil Building • NEW YORK: 45 Rockefeller Plaza • CHICAGO: 1612 Bankers Building
CINCINNATI: 2111 Carew Tower Building • NEW ORLEANS: 917 National Bank of Commerce Building

UNION OIL 76 COMPANY OF CALIFORNIA

CONSTRUCTION EQUIPMENT NEWS



Gradall Offers Offset Boom Attachment

Designed to permit straight-line operations when trench centerlines are offset from the machine, a boom attachment is now being offered as a standard accessory for the Warner & Swasey Gradall multi-purpose earthmover and construction machine. The accessory is available in either 3- or 4-ft sizes.—**The Warner & Swasey Co., 5701 Carnegie Ave., Cleveland, Ohio**



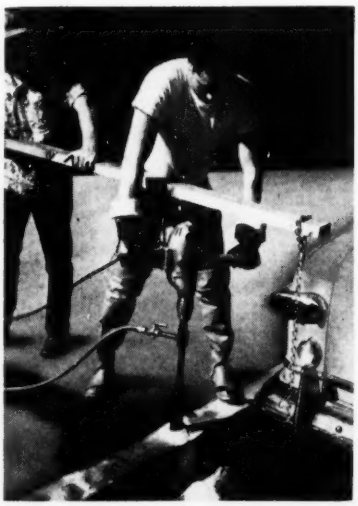
Corps of Engineers Gets Giant Bulldozer

The "Bull Moose", a new massive tractor bulldozer designed for operating scraper equipment and as a prime mover, has just been delivered to the U. S. Corps of Engineers. The vehicle has a dozer blade 11 ft wide and 4 ft high. It weighs 51,300 lb and can travel up to 25 mph pulling a 65,000-lb towed load.—**Allis-Chalmers Mfg. Co., Milwaukee, Wis.**



DW-20 Tractor Gets More Speed

The Caterpillar DW-20 four-wheel tractors now have a top speed of 34 mph, due to the development of a new overdrive. On the model with the 15.75 to 1 final drive reduction, an increase of 8 mph is possible over the standard model. Addition of overdrive to tractors with 21 to 1 final drive reduction increases the top speed 5 mph, giving a maximum speed of 25 mph. Available either on new machines or for field installation. — **Caterpillar Tractor Co., Peoria 8, Ill.**



Water Feed Speeds Drilling

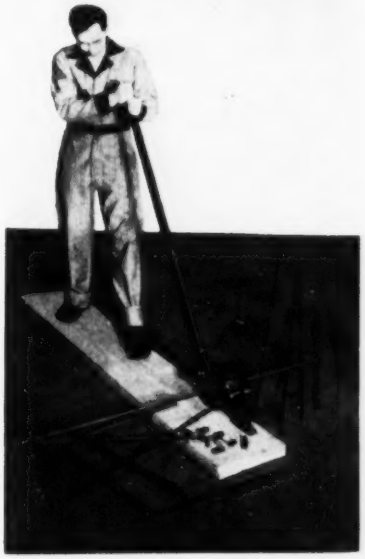
A water feed attachment for use with special Tilden Rotary Konkrete Kore Drills is claimed to increase drilling speeds up to 300%. Lubrication feature also prolongs life of drills.—**Tilden Tool Mfg. Co., San Clemente, Calif.**

On-the-Job Previews of Machinery, Tools and Equipment



An Excavator for Light Tractors

This manufacturer claims 33 important improvements in its redesigned model of the tractor-powered, hydraulic Pippin Excavator. The new model will excavate more than 10 ft deep and will lift to a height of 12 ft for truck loading. A 16-ft reach behind the tractor permits a 10-ft trench to be dug without moving the tractor. Bucket power is increased about 300%.—**Pippin Construction Equipment, Inc., White River Junction, Vt.**



Lightweight Rod Cutter

A specially adapted shear, consisting of a movable shear blade and fixed shear die gives a fast, easy and accurate means for cutting steel rods of various kinds and sizes.—**Whitney Metal Tool Co., Rockford, Ill.**



Truck-Mounted Crane

A Gar Wood 1200 series truck-mounted crane handles stone on the Grand Central Parkway Reconstruction Project in New York. Because the crane requires a minimum amount of space behind the cab, the truck can be used both for hauling and lifting. Owned by D. J. Tedaldi Construction Co., Baldwin, L. I., stone mason contractor.—**Gar Wood Industries, Wayne, Mich.**



Another New and Big Side-Dump Truck

The new Easton lift door side-dump truck body of 30-ton capacity, is one of a fleet recently delivered to an overseas iron mining operation. It is claimed to be the largest of its type. Designated as Easton Model BL-1530, the body follows Easton standard lift door design except for the special floor reinforcing plates

(Continued on next page)

Ruggedly Safe

—to do any jacking job better!

SIMPLEX JACKS



Re-Mo-Trol HYDRAULIC PULLERS

(PUMPS AND REMOTE CONTROLLED RAMS)
10 to 100 ton capacities

UNIQUE "CENTER-HOLE"* minimizes rigging and set-up—provides more effective power.

Simplifies tough pulling jobs! Pull rod or screw is drawn *through* ram plunger in straight, torque-free pull. Ram is own backup. Also lifts or presses.

*"Center-Hole" in rams of 30 ton and greater capacities.



RATCHET LOWERING JACKS

Lift or lower the load notch by notch. Cannot be tripped. *Toe* has *same capacity* as cap! High lift with minimum clearance means less set-up, less blocking. Single or double acting. 1½ to 20 ton capacities.

HYDRAULIC JACKS

Fast, easy power! Operate vertically or horizontally with same efficiency. Tested to 50% over rated capacity. Single or double pump models; 3 to 100 ton capacities.





SCREW JACKS

Cap floating on single chrome-moly ball reduces friction 88%. Forged cap corrugated for safety. Malleable iron base flared for stability. Four-way or ratchet heads. 10 to 24 ton capacities.

Other SIMPLEX JACKS include:

Simplex-Jenny Hydraulic Pullers
Push and Pull Jacks and Accessories
Reel or Drum Jacks
Trench Braces
Timber Braces

WRITE FOR GENERAL CATALOG No. 50

Simplex
LEVER • SCREW • HYDRAULIC
Jacks

TEMPLETON, KENLY & CO. 1008 South Central Avenue, Chicago 44, Illinois

CONSTRUCTION EQUIPMENT NEWS . . . Continued

of 4x1-in. abrasive-resistant steel-welded into position. Dumping is accomplished by an external overhead hoist. The body is mounted on a Dart Model 300 diesel-powered 6-wheel chassis.—**Easton Car & Construction Co., Easton, Pa.**



NEWER TRUCK CRANE—Model 1014, by Unit Crane and Shovel, has a lifting capacity exceeding 12 tons at a 10-ft radius and is rated at ½ yd as an excavator. With a 30-ft boom, its weight is approximately 37,550 lb. Over-all width is held to 8 ft with a wheelbase of 160 in. Basic machinery includes hook rollers, one-piece gear case, full-vision cab mounted on a sturdy crane carrier. It features all the latest designs in axles, brakes and air assist steering. It also includes the through drive in which the power flows from the truck engine in a direct line drive to the tandem rear axles. Road speeds are up to 35 mph with five speeds forward and one reverse. With an auxiliary transmission, speeds are extended up to 10 forward and two reverse. Power is from a 6-cyl R.D. 406 International Harvester Industrial gas engine in the chassis and a 6-cyl Chrysler Industrial gas engine with torque drive or a 2-cyl diesel engine for the upper machinery.—**Unit Crane and Shovel Corp., Milwaukee, Wis.**

COOLER CRANE CABS—Shovel and crane operators working in extremely hot and dusty conditions can now get some relief by requesting one of the seven models of air conditioning units being offered by the Lintern Corp. For temperatures up to 140 deg, four new units are available and for higher temperatures up to 180 deg, three new models are being marketed. These units reduce extreme temperatures down to comfortable 80 and 85 deg.—**Lintern Corp., Route 20, East, Painesville, Ohio**



On projects like these **DELTA** Radial Saws save Hunkin-Conkey thousands of dollars

Delta saws do the work of ten men in cutting—yet actual machine cost is less than 30 cents an hour.

A battery of Delta Radial Saws for on-the-job use at construction projects is chalking up annual savings running well into five figures, says Hunkin-Conkey Construction Company of Cleveland, Ohio.

Several of these saws have been in regular use, averaging more than 6 hours per day, for better than 10 years. There's been practically no maintenance—and at actual machine cost, except labor, of less than 30 cents an hour. They do more accurate work than other saws, do it much faster. Workers like the Delta saws for their ease of operation and their excellent safety features.

Savings like these are possible with the new Delta radial saw because of its many exclusive "extras"—rugged construction, 360° turret action, easy-to-reach up front controls—and many others.

For full information consult your Delta dealer (he's listed in the classified telephone directory under Tools) or write Delta Power Tool Division, Rockwell Manufacturing Company, 658F N. Lexington Ave., Pittsburgh 8, Pa.

MACHINE COST LESS THAN 30¢ AN HOUR

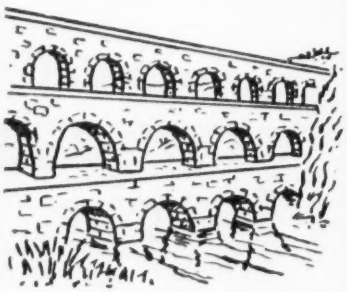
Based on 6 hours operation per day or 1500 hours a year, hourly saw cost figures just under 30 cents, as follows:

	Per Year	Per Hour
Depreciation 10% and average interest 2% on Delta 16" Radial Saw	$75	$ .05
Maintenance and Repairs (average of 7 saws)	30	.02
Saw blade depreciation	36	.024
Saw sharpening, 3 16" blades per week	150	.10
Power cost, 7½ H.P. motor		.10
Total machine cost per hour		.294

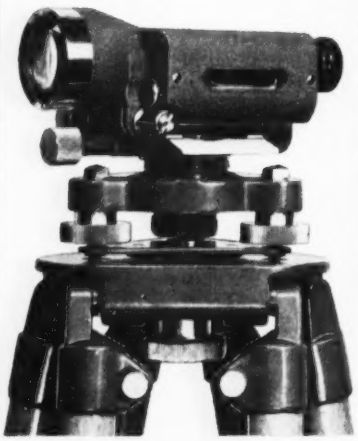
DELTA MILWAUKEE **DELTA QUALITY MAKES THE DIFFERENCE**

DELTA QUALITY POWER TOOLS
Another Product by **Rockwell**

A GILDED ERA . . .
A GLORIOUS PAST!



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THE NK2 LEVEL

Considered by many the outstanding instrument of its kind, the NK2 small engineer's level offers all the advantages of a coincidence level and tilting screw (without horizontal circle). Offering a working accuracy of ± .7 seconds, it is perfect for technical levelings, length levelings and stadia surveys in flat country.

The model NK2-C gives you your choice of the same instrument with horizontal circle (reading to 1 minute).

Complete Service Department
Factory Trained Personnel

KERN SURVEYING INSTRUMENT DIVISION

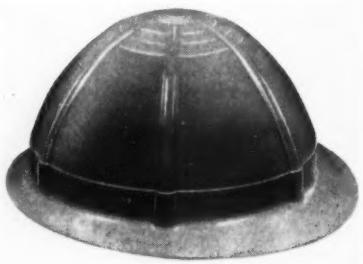
Paul Reinhart Co., Inc.

70 Beaver St., New York City



ONE-MAN CHAIN SAW—Capable of cutting rapidly through timber up to 5 ft in diameter, a new one-man chain saw has been introduced in California. Designed especially for construction and land-clearing work, this McCulloch Model 4-30 is rated at more than 4 hp, yet weighs only 30 lb. Blades are available up to 36 in. in length. An aircraft carburetor combined with an all-position fuel system enables the saw to operate at full power in all positions.—**McCulloch Motors Corp., Los Angeles 45, Calif.**

STUD-DRIVER GUARDS—Designed for instant anchoring of special sections or fixtures to steel or concrete, a complete line of special purpose guards for the Remington Stud Driver includes guards for fastening conduit clips, structural angle and channel, Unistrut and Wiremold sections, Loxit channel, plywood carpet gripper, electrical switch, utility and outlet boxes and lathing channels. Each of these guards can be rotated a full 360 deg. The manufacturer claims that tests proved fastening time can be cut up to 90% over previous methods.—**Remington Arms Co., Inc., Bridgeport, Conn.**



TOUGH HAT—Protective headgear with the shell molded in one piece of lightweight, moisture-proof plastic is constructed of vinyl and has impact, pierce resistance and unusual strength qualities. Said to incorporate a design that will deflect falling or flying objects.—**Willson Products, Inc., Reading, Pa.**

A ROMAN DREAMS . . .
OF MODERN PRECISION!

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Unbelievably advanced, the architects of ancient Rome possessed a skill and an art deserving of wonder. Working with makeshift, elementary instruments they achieved a degree of precision that is nearly miraculous.

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At your nearest dealer, or write direct to:

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Borden & Riley Paper Co.

60 E. 11th Street, New York City

They're on the right track! Mr. G. G. McAfee (left), official of Winston Brothers Company, and Mr. Tom Gearhart, Standard's Automotive Engineer, have worked closely together to make "molehills" out of mountainous lubrication jobs.



STANOLUBE HD-M
REG. U. S. PAT. OFF.
Motor Oil

They made "Molehills out of Mountains!"

To bring water from the Colorado River to the eastern plains of Colorado, men and machines have driven a 13-mile tunnel through the Rockies, hacked out vast reservoirs, and built great dams of earth and rock fill. They have literally made "molehills out of mountains!"

Winston Brothers Company, Constructors and Engineers, of Minneapolis, has played a major role in this vast construction project. Important to the successful operation of Winston Brothers' wide array of equipment has been Standard Oil's fleet lubrication service and the performance of STANOLUBE HD-M Motor Oil. Despite continuous operation of equipment, severe overloads, high engine speeds, and exposure to dust, sand, and water; STANOLUBE HD-M has kept engines clean and protected against wear. A minimum of maintenance has helped Winston Brothers keep equipment working on a basis of two 8-hour shifts, 6 days a week.

Standard's fleet lubrication service has accomplished the imposing job of supplying the right lubricants for the right jobs right on schedule. A Standard Oil Automotive Engineer has worked closely with Winston Brothers to give them help when they needed it.

You can put Standard Oil's fleet lubrication service and STANOLUBE HD-M to work for you by phoning your local Standard Oil office. Or write: Standard Oil Company, 910 S. Michigan Avenue, Chicago 80, Illinois.

STANDARD OIL COMPANY STANDARD *(Indiana)*



here's why COG* "MISSING LINKS" REPAIR CHAINS BETTER

"MISSING LINKS"	ORDINARY LINKS
MATCHED	**UNMATCHED**
Made with special dies so that each half is pressure fitted. This eliminates play between the forgings, insures perfect fit when riveted into chain. There is no strain on the rivets.	When loose fitting links are put into a chain and the load is applied, the rivets take most of the strain and tend to shear until the links set. This may later cause the link to open up under heavy load.
INTERLOCKING LUGS	**ROUND LUGS**
More costly to put in the dies, but they grip firmer and really do the work of taking the load.	Ordinary round lugs fitting into round holes don't have the holding power, tend to shear or force out under strain.

Laughlin "Missing Links" are made of carefully heat treated, high grade steel. They have features found in no other repair links, and are also supplied in an exclusive pear shaped design in sizes for 3/8" to 1 1/8" chain.

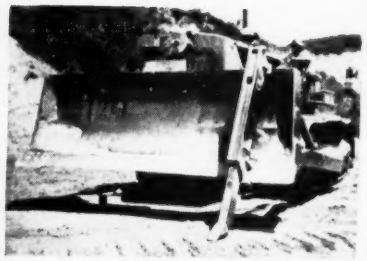
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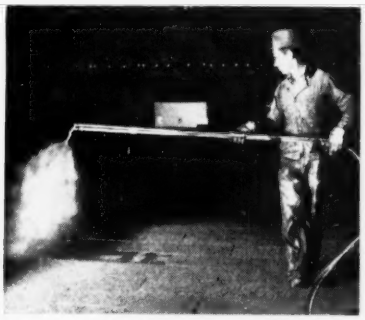
* T. M. Reg.



NEW RIPPERS—A new-type ripper that clamps on to the front of bulldozer blades of Cat D8s and D7s is known as the Preco Dozer-Ripper. The unit can be adjusted to depths of 22, 15, or 8 in. and can be fully retracted. Weight is 650 lb and it is said to be unusually effective for confined dozing and under extremely rough conditions—**Preco, Inc., 6300 E. Slauson Ave., Los Angeles 22, Calif.**



POCKET SIZE—A new instrument, the Pocket Theodolite Wild T 12, is an extremely compact and lightweight instrument designed for such surveying projects as general construction, forest surveys, preliminary surveys, and the detailing of cadastral maps. An important feature of the design is the tripod. By incorporating a special vertical telescope in the T 12, its tripod can be compact yet lightweight and still retain stable characteristics. In the vertical telescope an accurate optical prism moves under the fixed telescope to allow the line of sight to be inclined up or down 36 deg. Only 2½ in. in diameter, the pocket theodolite is only 2/3 the size of a pint thermos bottle and can be carried in a brief case.—**Henry Wild Surveying Instruments Supply Co. of America, Inc., Main and Covert Sts., Port Washington, N. Y.**



ASPHALT APPLIED COLD—Called Laykold Insulation Adhesive, a new heavy-bodied asphaltic emulsion, can be applied cold, eliminating the cost of heating equipment. Made from high-ductility, plasticized base-asphalt, it is compounded without the use of fire-hazardous petroleum solvents, water-absorbent clays or other types of fillers which could cause re-emulsification. Before setting, this odorless material is buttery in consistency, suitable for easy spray or brush application without sagging during the setting period. It is used for vapor barriers with various kinds of asphalted papers, fabric, felt, glass, fiber or metal foil; all types of formed or block insulations; as a seal for perimeter insulation around concrete floor slabs and a variety of other applications where a viscous, tacky film is needed.—**American Bitumuls & Asphalt Co., 200 Bush St., San Francisco 4, Calif.**

CARBIDE-TIPPED DRILL—Boring holes in concrete, brick, plaster and other materials normally found in building construction and maintenance has become a simple operation with the new type carbide-tipped self-cleaning drills. Sizes range from 3/16 in. up.—**Carboloy Dept., General Electric Co., Detroit, Mich.**



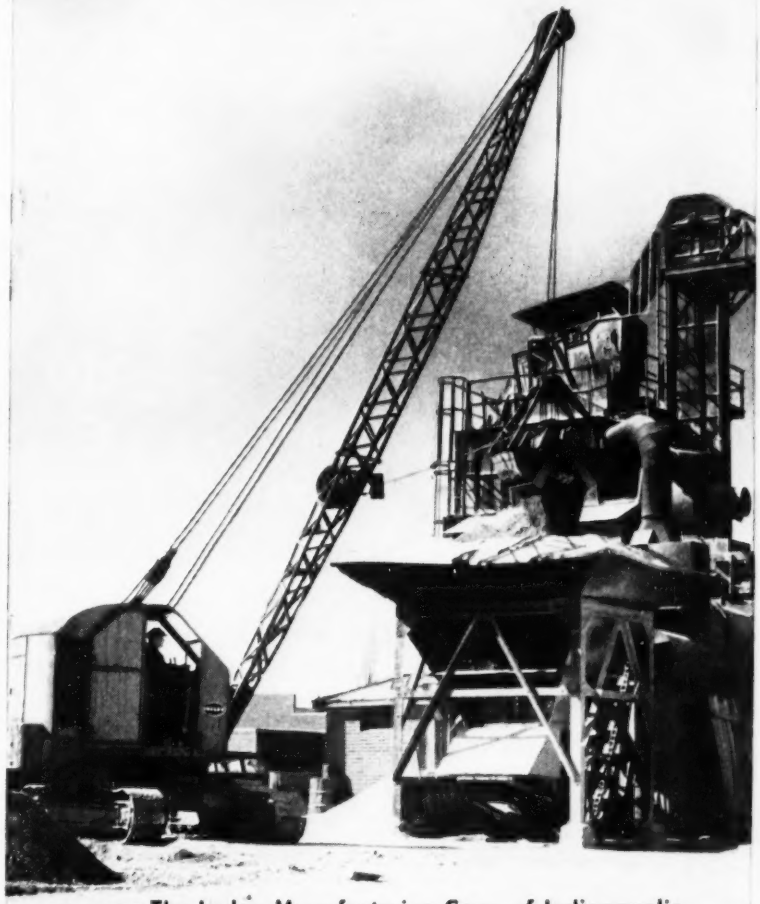


AIR SHUT-OFF COUPLINGS—A two-way coupling for automatic positive shut-off of air pressure when disconnecting air hose connections, eliminates the need to open and close air valves at the compressor tank. The couplings are constructed with identical-type valves in each end.—**Twinmatic Corp, 2246 S. Barrington Ave., Los Angeles 64, Calif.**

"There's an

INSLEY

working near you"



The Insley Manufacturing Corp. of Indianapolis has been manufacturing construction equipment since 1907. The Insley Line includes excavators and cranes, 5 to 30 ton capacity—rubber or crawler mounted—gasoline, diesel or electric powered. There's an Insley working near you.



Minimize **PITTING**

Eliminate **PATCHING**

Insist on **GLOBE FORM GREASE**

The Wonder Grease for Concrete Forms

REGARDLESS of whether you use steel or wooden forms for concrete work — you can apply Globe Form Grease by spray, brush, or swab. This time-tested paste emulsion will reduce peeling and pitting to a minimum when forms are removed, and practically eliminate patching.

Due to its special adhering qualities, Globe Form Grease requires only a thin coating for utmost effectiveness. In fact, one gallon adequately covers approximately 200 square feet! And in addition — Globe Form is stainless, leaves a whiter smoother surface, and eliminates the need for painting.

Why not write for full particulars today? Once you use Globe Form Grease, you'll understand why engineers and contractors hail it as the "wonder grease" for concrete forms.

OILS *and* GREASES
for every purpose
DIESEL
STEAM
AUTOMOTIVE

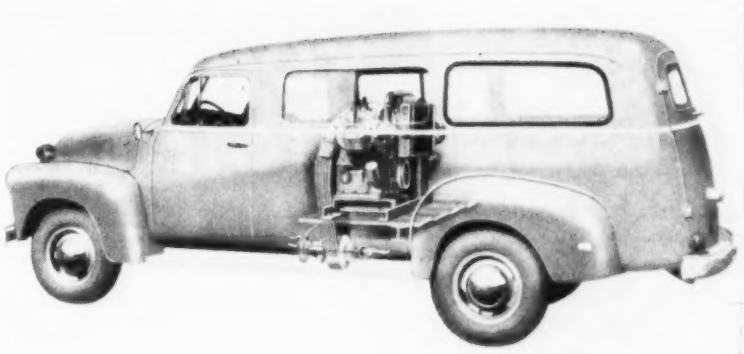
Write for descriptive booklet of all Borne, Scrymser products.

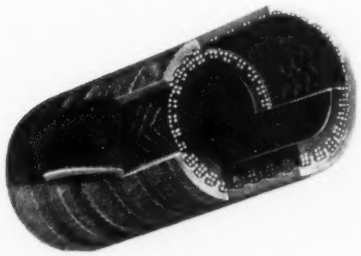
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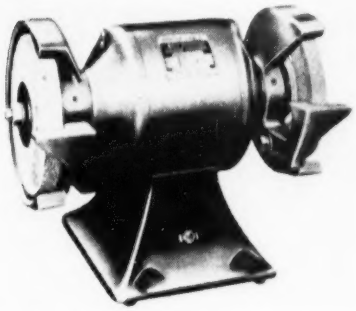
BORNE, SCRYMSER COMPANY ELIZABETH, N. J. • CHARLOTTE, N. C.

AUTO-AIR COMPRESSOR—This is Davey's Auto-Air compressor (right) which was on display at the Associated Equipment Distributor's convention in Chicago. Known as Model 105-VBA, it's a 105-cfm unit and is driven directly by the truck engine through the driveshaft and a Davey P-80 heavy-duty power takeoff. The compressor occupies only 1/3 of this panel truck, leaving room for men, tools and materials.—**Davey Compressor Co., Kent, Ohio.**

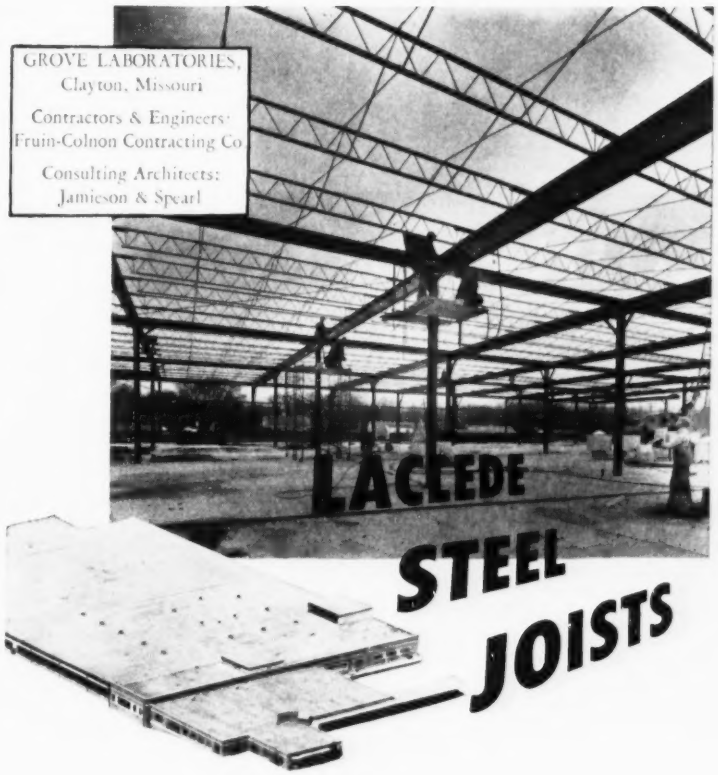




BETTER AIR HOSE—Developed for rugged uses in construction jobs, mines, quarries, steel mills, and like industries, a new heavy-duty air hose to withstand working pressure as high as 450 psi is constructed of horizontally braided rayon cable cord reinforcement. This new hose, called Qua-Flex, will remain flexible at temperatures as low as 40 deg below. The non-porous tube is compounded of special rubber to withstand both oil and heat and eliminates snaking at high pressures. It's available in lengths up to 50 ft, in various diameters.—**Quaker Rubber Corp., Division of H. K. Porter Co., Inc., Philadelphia, Pa.**



NEW GRINDERS—Four new lathe-type double-arbor bench grinders, ranging from ¼ to 1 hp and in price from $41 to $135, have totally enclosed motors with dynamically balanced rotors to assure vibrationless operation. Ball bearings are pre-sealed, and heavy wheel guards are removable. The grinders turn up at 3,450 rpm, except the largest model which turns at 1,750 rpm. Accessories include grinding wheels, wire wheel brushes, cloth buff wheels and metal-framed safety glass eye shields.—**The Porter-Cable Machine Co., 14 Exchange St., Syracuse, N. Y.**



for FRAMING LARGE AREAS ECONOMICALLY... QUICKLY

Specify These Laclede Products: Welded Wire Fabric • Form & Tie Wire • Multi-Rib Reinforcing Bars • Joists • Corrugated Steel Centering • Spirals • Conduit • Steel Pipe • Electrical Weld & Gas Weld Tubing

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Producers of Construction Steel
LACLEDE STEEL COMPANY
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4-Cycle
Air-Cooled

KOHLER ENGINES



Power for garden tractors, mowers, pumps, sprayers, snow removal equipment, elevators and hoists, portable saws, concrete mixers, compressors, grinders, industrial and lift trucks, and a wide range of tools and equipment for industry, construction, farm and home.

Engineered and built to the quality standards that have won acceptance for Kohler Electric Plants the world over.

Write for information.

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PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS
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JACKSON ANNOUNCES NEW SELF-LUBRICATING WHEELBARROWS



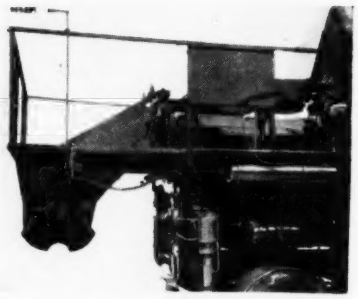
MODEL M11-24
Contractors Barrow

Now you can save money. Use a Jackson Self-Lubricating heavy duty barrow. They cost less, wear longer and absorb the shock load better.

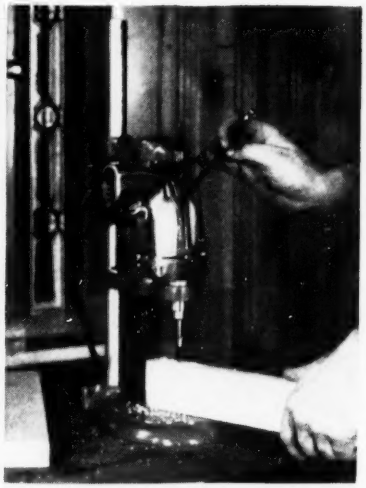
Model M11-24B (Roller Bearing) still available.

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Oldest and largest wheelbarrow maker in America

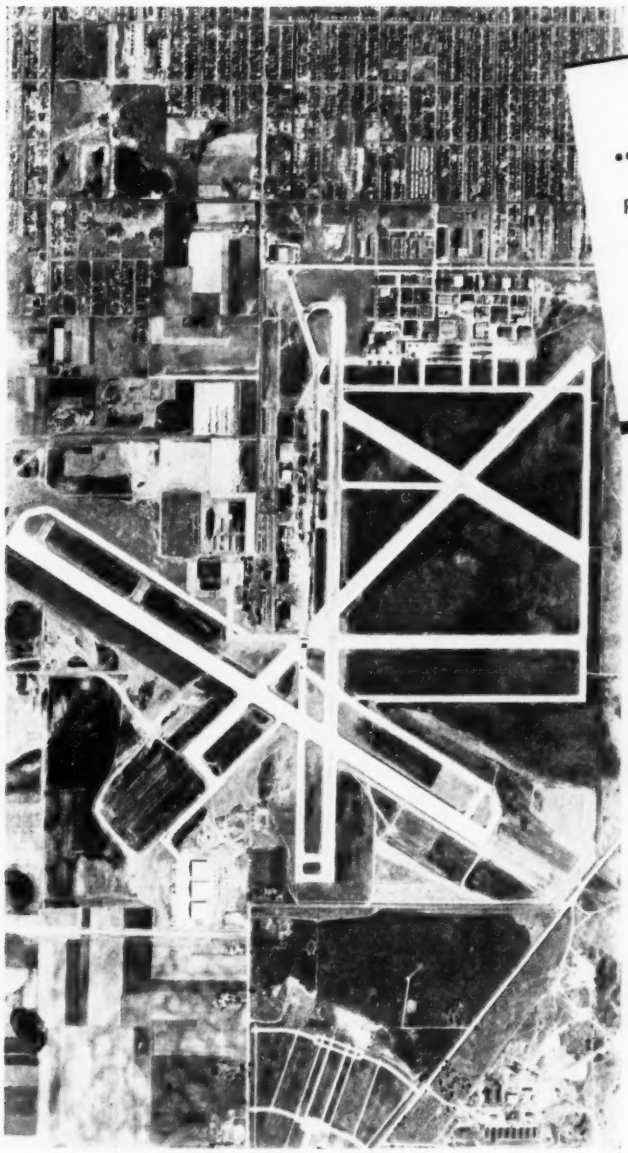


IMPROVED ASPHALT PLANT—Models 51 and 101 continuous process asphalt plants have been improved with the installation of a new type truck loading hopper with twin clam gates on the mixer units, permitting discharge of material from the pugmill into trucks with least possible segregation of mix. The gates are steam-cylinder actuated by a lever extending up to the operator's platform. Capacities of the discharge hopper have also been increased. The hopper on the small mixer holds approximately 1 ton, while the hopper on the large mixer holds approximately 2 tons.—**Pioneer Engineering Works, 1515 Central Ave., Minneapolis 13, Minn.**



FINGERTIP DRILLING—Better stability due to a wide solid base which does not have to be mounted and fingertip drilling through precision rack and pinion gears are two of the advantages being offered in this new drill stand for ¼-in. electric drills. When mounted in the stand, the drill handle is off to one side leaving an unobstructed view of the work. Identified as Model DS-1, it has a 10-in. maximum height adjustment from base to tip of drill chuck, less bit and a 7½-in. maximum clearance from base to tip of standard length bit. It also has a 2¾-in. vertical feed, and holes can be drilled 4¾ in. from the edge. It can be purchased for $14.95 from **Mall Tool Co., 7725 S. Chicago Ave., Chicago 19, Ill.**

"...much more satisfactory mixtures by adding air-entraining agent at the mixer"!





...says Mr. W. E. King

President of Toltz, King and Day, Inc., Engineers and Architects for the Minneapolis-St. Paul Wold-Chamberlain International Airport.

In expansion of the Minneapolis-St. Paul Wold-Chamberlain International Airport, *Toltz, King and Day, Inc.*, faced the toughest kind of concrete problem. Runway requirements demanded concrete to support the severe shock of heavy aircraft and with resistance to frost and extreme temperatures. Engineering specifications required *air-entraining* concrete with a fixed degree of air entrainment regardless of variations in construction conditions.

Approximately 1,000 square yards of runway were laid using air-entraining cement, with unsatisfactory results. Following this, 4,000 square yards of runway were laid using the "prescription" technique. The results—in the words of Mr. King: "*We have been able to secure much more satisfactory mixtures by adding the air-entraining agent at the mixer . . . and plan to use this method on future work.*"

Once again, the "prescription" method—using regular portland cement *with air-entraining agent added at the mixer*—delivers the goods.

★ ★ ★

If you have any problems or questions on the use and mixing of air-entrained concrete, the Marquette Service Engineer will be glad to help and advise you —contact any Marquette office.

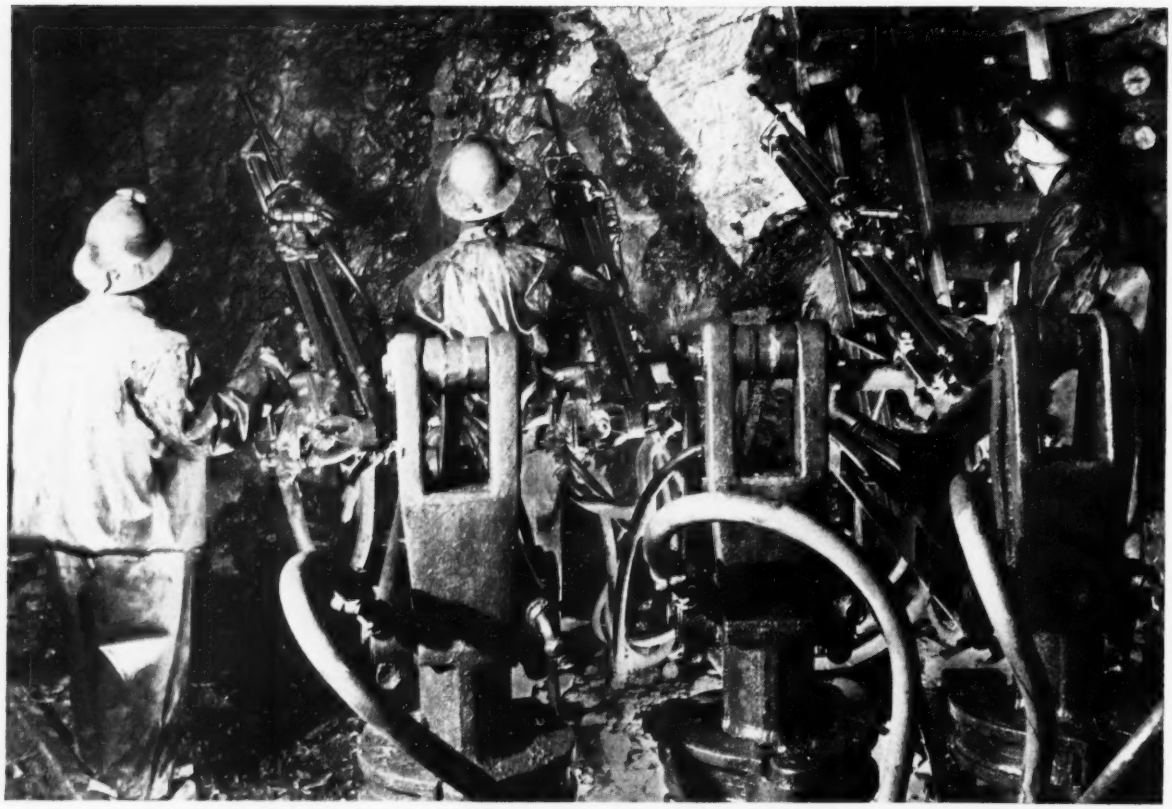
Marquette Cement

MANUFACTURING COMPANY

SALES OFFICES: Chicago • St. Louis • Memphis • Jackson, Miss. • **PLANTS:** Oglesby, Ill. Des Moines, Ia. • Cape Girardeau, Mo. • Nashville, Tenn. • Cowan, Tenn. • Brandon, Miss.

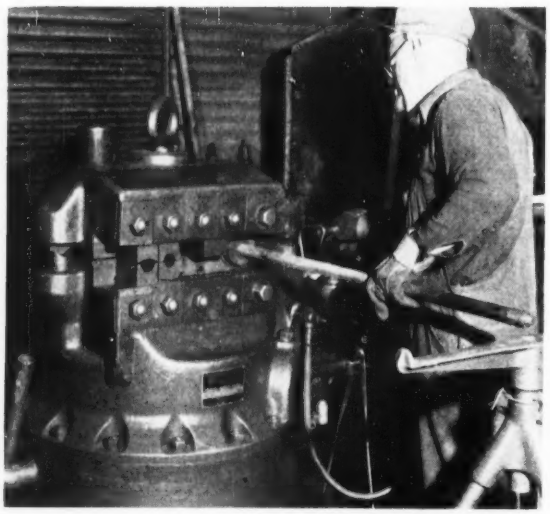
PORTLAND • HIGH EARLY STRENGTH • AIR ENTRAINING • MASONRY

Marquette Cements



This mobile jumbo mounts three drifters for drilling a fast round in the footwall slate as headings are advanced on the 2,400-ft level. Carbide-tipped bits and Bethlehem hollow drill steel are relied on to keep the job on the move.

Driving an 8,800-ft drift to open up large tonnages of Marquette ore



The sharpener operator shanks a 1-in. quarter-octagon rod in the well-equipped drill steel shop operated by the Mather Mine.

Photos courtesy of H. H. Korpinen, Superintendent, Mather Mine.

A substantial increase in the production of iron ore at the Mather Mine depends on a newly-driven drift which connects the famous A and B shafts located at Ishpeming and Negaunee, Michigan. Being driven from two headings on the seventh level, 2,400 ft below the surface, the main level drift makes it possible to turn cross-cuts under sizable ore bodies.

Drilling, blasting, and mucking were carried on at a fast pace from the time the project was begun in early 1951. From start to finish, they have relied on Bethlehem hollow drill steel to help keep the drilling on schedule, both in this vital haulage tunnel and elsewhere at this property.

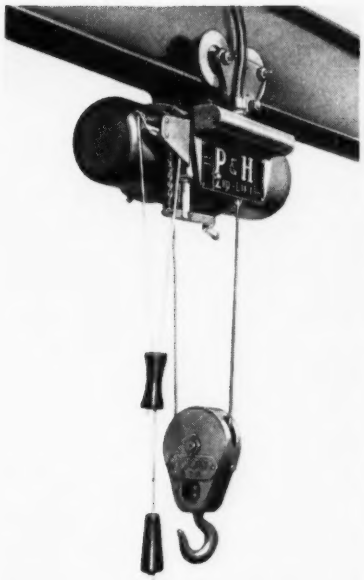
Output of iron ore at this mine totalled 1,635,256 tons in 1951. Production in 1952 reached 1,701,343 tons, an all-time record for the Marquette Range. The management expects the mine ultimately to reach an annual capacity of 3 million tons.

BETHLEHEM STEEL COMPANY BETHLEHEM, PA.

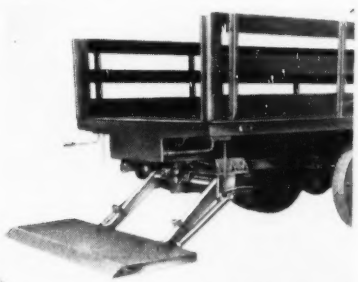
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM HOLLOW DRILL STEEL



LOW-COST HOIST—Designed to sell for $199.50, a new model Zip-Lift Electric Hoist with rope control, is available in two models with lifting capacities of 500 and 1,000 lb. Hoisting rates are 25 and 13 fpm and are available in 12- and 18-ft lifts. The new Zip-Lift is guaranteed to operate continuously during intermittent usage for a period of 25% longer than the rated time limit. It also has a weight overload safety factor of five times the rated capacity. More information can be obtained by asking for Bulletin H-20. **—Harnischfeger Corp., 4400 W. National Ave., Milwaukee, Wis.**



IMPROVED HYDROGATE—Marion Metal Products Co., has announced several important engineering improvements in the Hydrogate, its hydraulic power tailgate for trucks. A double-locking device is the major improvement. The Hydrogate now locks more securely because of the relocation of hooks. Locking and lifting controls are fully coordinated so that it is not necessary for the operator to dismount in order to unlock the gate. The sealing around the main lift cylinder head, piston rod and on the closing cylinders has also been improved. This unit is designed to fit old or new trucks and will handle up to 2,000 lb.**—Marion Metal Products Co., Marion, Ohio**



THE WISE CONTRACTOR is prepared for emergencies. The River Construction Company, laying pipe across the Trinity River, faced an emergency when a speeder LS 85 dragline slipped into 58 feet of water. This equipment was valuable and urgently needed on the job. The problem was to get it out and get it quickly. Let Mr. B. C. Hall, spread superintendent, tell how he rescued this heavy piece of machinery: "The only solution was to hook up two cables from two Carco winches and lift the speeder out. Those two Carco winches brought out that 44-ton dragline like it was a pail of water from a well. On construction work, the Carco winch can't be beat for long life, pulling power and all-around efficiency."

Rescue work is only one of the many uses of a Carco winch. You'll find them valuable, too, in pulling or lifting pipe, in towing heavy equipment, in loading or unloading cars, in a variety of jobs on pipeline and heavy construction work.

Remember, you can expect greater value from the leading producer, and get it from Carco, first in winch production. PACIFIC CAR AND FOUNDRY COMPANY, Renton, Washington. Branches at Portland, Oregon, and Franklin Park, Illinois.



WINCHES FOR ALL *INDUSTRIAL TRACTORS*

CARCO

HOW TO HANDLE WET JOBS

#18 of a Series

ST. NICHOLAS HOUSES

New York City

Contractors: Willcox Construction and James McHugh Constr. Co.



WELLPOINTS WIN IN "PHOTO FINISH"

DUE TO sub-soil conditions, foundation design in this last building had to be changed. After such delay, time was of the essence. The Housing Authority's test had shown that water must be lowered 10 ft. Soil: very coarse sand. How fast could it be done?

• That was the problem as action got going on pre-drainage, as follows: Griffin wellpoint equipment was raced to the nearby job-site in 60 minutes. Within 39 working hours thereafter a wellpoint system of 600 ft perimeter was installed and drinking up ground water — that was 11:45 P.M. on a Friday. Only 8 hours later, pumping had brought water below required level.

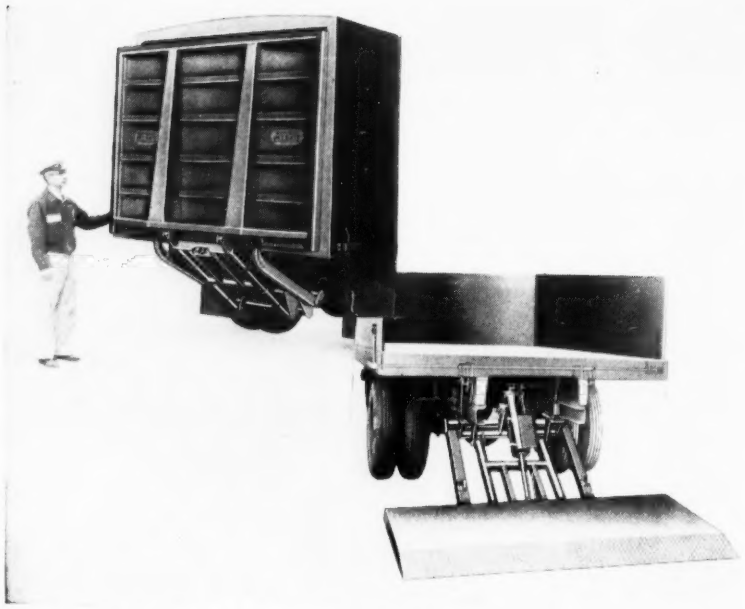
• Failure of just one day would have held up digging 3 days, with machinery idle . . . When dependability counts, count on Griffin.

GRIFFIN

WELLPOINT CORP.

881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.

In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Halifax



LIFT GATE HAS 4,000-LB CAPACITY—New capacity, simplicity and lighter weight are outstanding features of the new 4,000-lb Lift Gate recently perfected by Anthony. An improved hydraulic control system, which eliminates one or more cylinders, valves and a host of parts, utilizes the power of a single lift cylinder both to lift the load and close the gate.—**Anthony Co., Streator, Ill.**



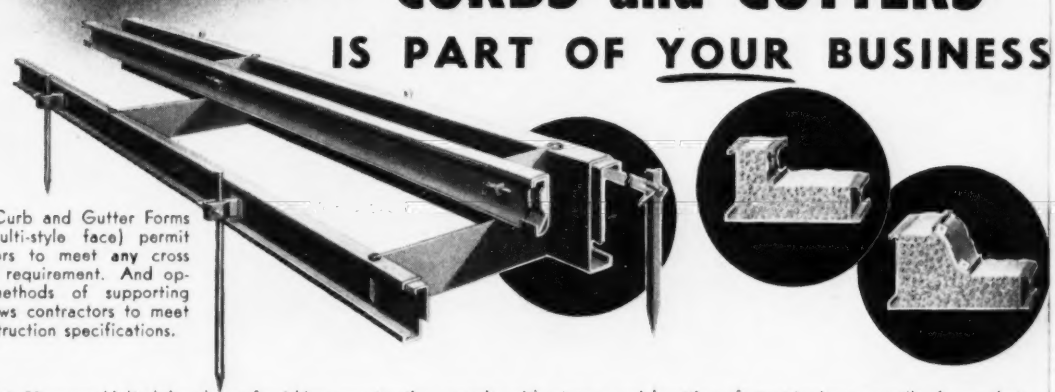
CEILING PAN INSULATION—Two workmen are shown here installing a 100-ft long roll of Aerocor, a noise-absorbing insulation that's designed for use with metal ceiling pans. In addition to the rolls, the company also provides individual pads which fit in side ceiling pan units. These latter measure $11\frac{7}{8}$ by $23\frac{7}{8}$ in. and have a .85 noise reduction coefficient when used with standard perforated metal pans. The roll type is $23\frac{7}{8}$ in. wide and may be rolled out quickly and easily at a minimum installation cost. When used in this manner, it is said to have a noise reduction coefficient of .80. Aerocor is made of minute fibers of glass; hence it will not burn, support combustion, rot, decay, absorb or give off odors. Paper facing is unnecessary and, because of their compressibility, large quantities of the pads may be stored in a small space. The roll insulation has also been used as a casing insulation on heaters and air conditioners, as flexible insulation around curved or irregularly shaped ducts, and on hot and cold piping.—**Owens-Corning Fiberglas Corp., Toledo, Ohio.**

RUBBER-LINED CRAWLER PADS—Resilient rubber vulcanized to steel plates and bolted to crawler pads, is a new process recently developed by Metalweld using the B. F. Goodrich Vulcalock Bonding Process which has a bonding strength of more than 500 psi. This process permits movement of pavers over finished concrete without damage to the surface.—**Metalweld, Inc., Scotts Lane and Abbotsford Ave., Philadelphia 29, Pa.**

Save this page . . .

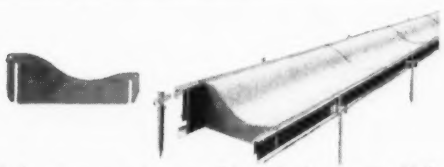
. . . if the

CONSTRUCTION OF
CURBS and GUTTERS
IS PART OF YOUR BUSINESS



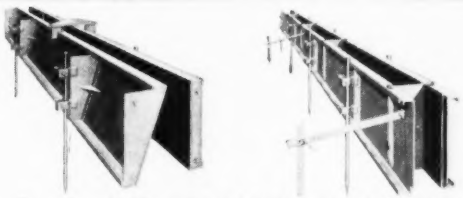
Heltzel Curb and Gutter Forms (with multi-style face) permit contractors to meet **any** cross sectional requirement. And optional methods of supporting face allows contractors to meet **any** construction specifications.

For almost 50 years Heltzel has been furnishing construction people with strong, quick-setting, fast stripping, versatile forms that make concrete forming easier, faster and less expensive.
On this page is a sampling from the world's most complete line of modern steel forms . . . designed and built by the nation's leading manufacturer of forms for concrete construction.

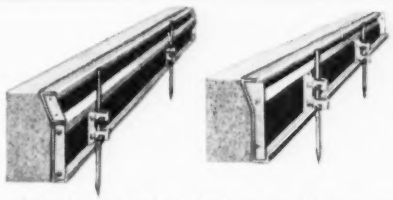




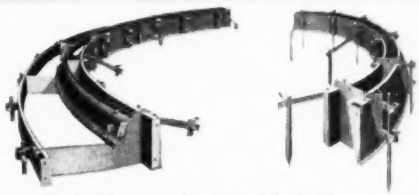
Two of the many variations possible with the popular **Helco Basic Forms.** These forms are designed to permit contractors to work almost an endless variety of curbing styles from the same basic set. All **Helco Basic Forms** are made of long lasting tough carbon manganese steel in 10' sections.

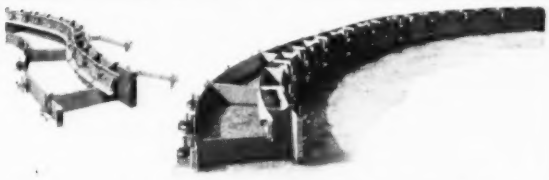


For curb work 12" to 24" in height, Heltzel has designed a **heavy duty dowel joint form** that has found ready acceptance in the field.



For partially battered curbs Heltzel can furnish either one or two piece front forms depending on your job requirements.





Heltzel builds a complete line of **Radius Forms**—either Rigid or Flexible. All forms are built to exact cross sectional specifications. Flexible Radius Forms are ideal for serpentine work for parks, etc.; Rigid Forms for repetitive curve pours where the radius is constant.

CONTRACTORS AND MUNICIPAL ENGINEERS: Today's high labor costs make the use of steel forms almost a necessity. You'll find that Heltzel can provide by far the widest variety of either standard or special forms.

If you don't already have Heltzel Form Bulletin L-20, get your copy today by writing **The Heltzel Steel Form and Iron Company, Warren, Ohio.**

—Naturally It's A— Heltzel — Flex-Plane — *Product*



You'll Find it Pays to STAY with SMITH!

Owners of Smith-Mobile Truck Mixers invariably come back for more Smith-Mobiles. Why? Because they are thoroughly satisfied with the performance of their machines. They KNOW from their own practical experience that Smith-Mobiles have longer life, lower maintenance costs and LESS DOWN TIME . . . that Smith-Mobiles are designed to DELIVER MORE YARDS PER YEAR . . . give you MORE "TAKE HOME" DOLLARS. Beyond this, they know that Smith-Mobiles are backed by the world's leading concrete mixer manufacturer. So it's no wonder you see so many fleets of Smith-Mobiles in every section of the country. Once a Smith-Mobile owner . . . always a Smith-Mobile owner. You'll find it pays to stay with Smith.

THE T. L. SMITH COMPANY
2851 North 32nd Street • Milwaukee 45, Wisconsin, U. S. A.
Affiliated with ESSICK MANUFACTURING CO., Los Angeles, Calif.

SMITH
THE T. L. SMITH CO. MILWAUKEE U.S.A.

CONCRETE MIXERS

For BIGGER and BETTER Concrete Mixers and Truck Mixers . . . LOOK TO SMITH

New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use.

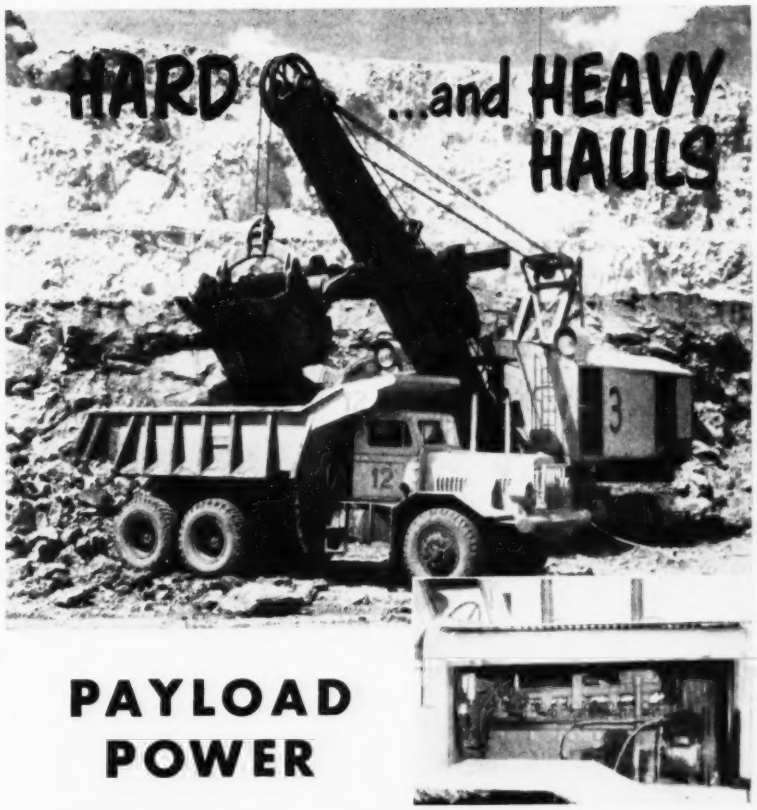
AUTOMATIC WELDING—A 4-p booklet describing Rexarc Automatic Welders and positioners for rebuilding crawler-type tractor rails, scraper blades, shovel dipper sticks, hard-facing and rebuilding rollers, idlers, sheaves, crusher rolls, circular shapers and countless additional applications has just been released to the trades. Another booklet describing portable and stationary acetylene generators, compressing plants, welding supplies and accessories is also available. **—The Sight Feed Generator Co., West Alexandria, Ohio**

WALL COPING—A comprehensive, 8-p booklet giving dimensions and details of wall coping and fittings, is pocket-size and well-illustrated, and can be obtained without charge. **—The Evans Pipe Co., Uhrichsville, Ohio**

FILM-EARTHQUAKES AND CONSTRUCTION—A 16-mm color film, a pictorial study of the effects of the numerous earthquake shocks on buildings in California during 1952, is now ready for loan at no charge. The 10-min-run film stresses the value of sound design and construction in regions where earthquakes are a probability. The emphasis in the film is on school construction. **—West Coast Lumberman's Assoc., 1410 S. W. Morrison St., Portland 5, Ore.**

TRAVELOADER—The J. D. Adams All-Purpose TraveLoader is completely described and illustrated in a new 8-p booklet released last month. Action shots show the machine at work on various types of windrow and stock-pile loading. Among the manufacturer's claims for the machine are high, centrally located cab, high-speed revolving feeder, heavy-duty industrial engine, conveyor adjustable to various sizes of trucks, high travel speed of more than 25 mph. Ask for Bulletin 537.**—J. D. Adams Mfg. Co., Indianapolis, Ind.**

ELECTRODES—Relative qualities of Arcair carbon-graphite electrodes are compared to all-carbon or all-graphite electrodes and details of actual performance given in a new booklet available from welding supply houses.**—Arcair Co., 2614 Burwell St., Bremerton, Wash.**



• Where the digging is toughest and where the hauling is heaviest, and hardest . . . where turns twist, and grades are steep and stiff—Waukesha Super-Duty Diesels take the jobs through, and come back for more. The truck shown hauls an average payload of 30 tons at an elevation of 6400 feet from a quarter to a half mile 16 hours a day. It makes about 38 trips a day. Waukesha has put all this payload performance into its Diesels—by 25 years of Diesel development and research—with many exclusive Waukesha features. The patented spherical combustion chamber controls combustion to meet operation needs—giving the engine lively responsive acceleration, smoothness and complete clean burning for high fuel economy and low maintenance. For the *how* and *why* Diesel details, send for Bulletin 1415.

174

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN
New York • Tulsa • Los Angeles

5 or 6 INCH AUGERS·· drill up to 80 feet
4¼ INCH AUGERS·· drill to greater depths

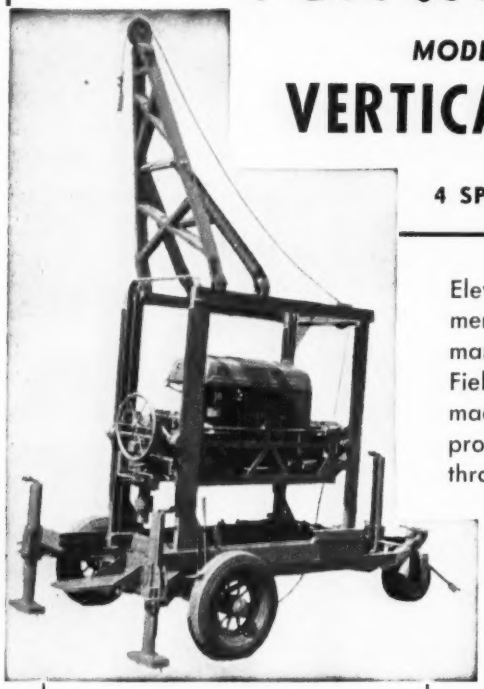
Parmanco

MODEL 51V

VERTICAL DRILL

HEAVY DUTY

4 SPEEDS AND REVERSE



NOTE: 3 Jacks for leveling machine. This Parmanco feature insures straight holes.

Eleven years of development have gone into Parmanco vertical drills. Field tests have been made in every type of prospecting and stripping throughout the world. Here is a mobile drilling tool, built around a 40 h.p. Ford motor and to user's conditions and requirements. In use today in many fields, it is speeding and simplifying jobs.

In a recent field test an accurate sample was taken in 30 minutes thru 25 feet of overburden. This was done adjacent to an identical test hole that had taken 8 days to drill and sample by hand.

This Model 51V has four auger rotating speeds and reverse. It has proved its ability to meet the requirements of the general prospecting field where it is not necessary to drill solid limestone.

This machine (Model 51WV) is also built around a Wisconsin 25 h.p. air-cooled motor, 4 speed transmission and self-starter.

PARIS MANUFACTURING CO. PARIS, ILL.

TRUCK CRANE—A new 6-p illustrated bulletin describing their 6-ton, ⅜-yd Model T-35 truck crane has just been issued by Schield Bantam. Improved engineering features, including new power boom hoist, heavier trunnion base, improved swing shaft, improved air-cooled clutches and brakes and new full-vision cab are pictured and described in detail. One page is also devoted to different attachments available for the T-35. Ask for Bulletin TCR-201.—**Schield Bantam Co., Waverly, Iowa**

DIESEL ELECTRIC SETS—Five models of diesel electric sets are described in a new booklet just published by Caterpillar. More than 50 illustrations are devoted to explaining the fuel, lubrication and cooling system; self-regulating generators and automatic standby units. Copies can be obtained from any Caterpillar dealer.—**Caterpillar Tractor Co., Peoria, Ill.**

SLEEVES AND BOOTS—In a bulletin now being offered to designers of original metal-working equipment and to industrial maintenance men, there are illustrations of accordion, telescopic sleeves and boots being used on various pieces of equipment to prolong life. The sleeves made of neoprene base material are fabricated round, square, rectangular or triangular to user's specifications. Ask for Bulletin BA-1.—**A & A Mfg. Co., 2017 West Clybourn, Milwaukee, Wis.**

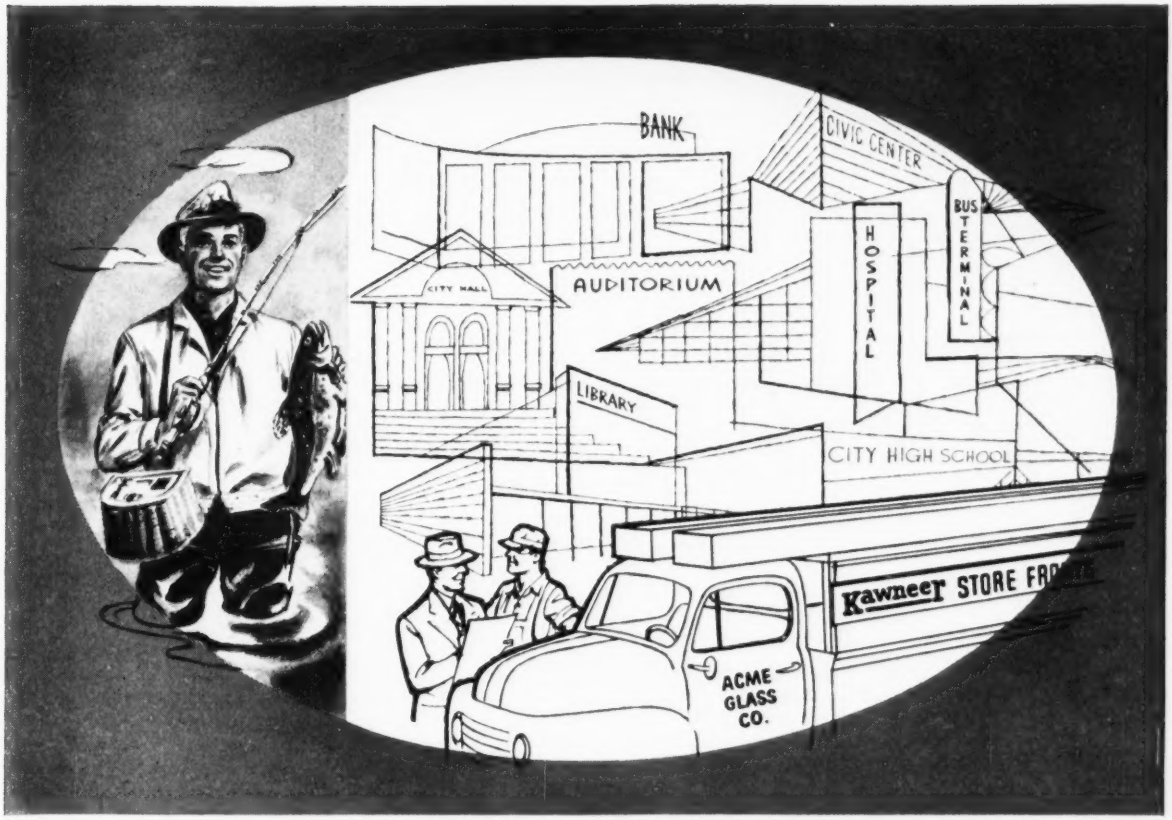
BELTING—B. F. Goodrich Co. has just issued a 32-p manual on the installation and maintenance of conveyor and elevator belting. Included is a table which lists common conveyor belt maintenance problems, the cause of each one and the best remedy for the situation. Also discussed is the recently announced conveyor belt system for handling wet, corrosive, sticky or freezing material.—**B. F. Goodrich, Akron, Ohio**

MOTOR GRADER MOVIE—A full-color motion picture of 20-in duration showing the Warco 4D-100 Motor Grader in action is now available for showing from Warco distributors throughout the country. Make your request to see it through your nearest Warco dealer.—**W. A. Riddell Corp., Bucyrus, Ohio**

WHERE TO BUY

STOP that WATER

With FORMULA NO. 640, a clear liquid which penetrates 1" plus in concrete, brick, stucco, plaster, etc. Seals out water, dirt. Holds 20' head. Use outside and in. Preserves all absorbent materials. Sold 14 years. Quick, economical, sure. $3 in 55's. Free sample. See Sweet's.
HAYNES PRODUCTS CO., OMAHA 3, NEBR.



Go fishin', Mr. Builder

Leave Building Front Problems in Capable Kawneer Hands

Even during this busy season, you could go fishin', if you wanted to. How? Just turn your building front problems over to Kawneer. No matter how big the jobs may be . . . even if you're erecting or remodeling fronts for such structures as Department Stores, Hotels, Institutions or Public Buildings . . . you can rely on Kawneer products and Kawneer services.

Kawneer products . . . building front materials, doors and entrances, colored chip- and rust-resistant Zourite aluminum facing, and sun control products . . . are quickly and properly applied by Kawneer Installing Dealers.

And Kawneer services mean such benefits to you as ready bids for individual jobs through Kawneer national sales and dealer organizations. Kawneer speeds delivery through centralized warehousing and inventories of properly designed products adaptable to any kind of installation. And the broad Kawneer line of building front materials permits one source for the entire job. Make use of specially trained Kawneer field installation supervisors who are available on large or difficult jobs. And insure your profit by sub-contracting building front installation to factory-trained Kawneer Installing Dealers.

You will find a Kawneer Installing Dealer listed under "Store Fronts" in the classified pages of your telephone directory. Call him today. Or write Kawneer, Niles, Michigan.

Typical Kawneer hotel application.





A Kawneer department store example.



Before: left
After: above. Kawneer village hall modernization.



Kawneer helped this civic center.

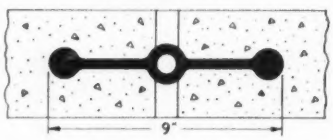


Servicised Molded Rubber
WATERSTOP

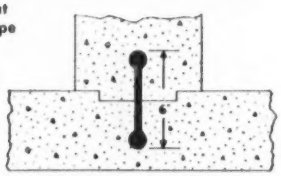
Servicised Rubber Waterstops meet all standard engineering specifications. Made of durable, elastic, cured rubber compound.

Both types available in 6", 9" and 12" widths in any required length.

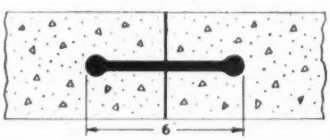
FOR EXPANSION JOINTS
Center Bulb Type



WATERSTOP AT FOOTING
Flat Type



FOR CONSTRUCTION JOINTS
Flat Type



Write for samples, prices and the Servicised Products Catalog. No obligation.

SERVICISED PRODUCTS CORP.
6051 WEST 65th STREET • CHICAGO 38, ILLINOIS

meet the . . .

HEAVYWEIGHTS

★JAMES J. CORBETT—heavyweight champion of the world—1892 to 1897
weight .....178 lbs.
height .....6'1"





WAYNE CRANE . . . heavyweight champion of the ½-yard, 10-ton class—1946-TODAY!

32,655 lbs. as a Model 20 shovel proves it—a champion money-maker, too! Ask any owner to tell you his experiences with Wayne Crane . . . place an order for your next crane-excavator on the basis of what he tells you.

The heavy-duty Wayne Crane is designed for *tough digging*—its mobility and fast, easy operation make it a natural for stockpiling, too!

Your dealer will give you a list of Wayne Crane owners doing your kind of work—call them at our expense.

Plan Now to check with a Wayne Crane owner before you buy!

Also available—Model 66, 8-ton crawler-mounted; Model 40, 12½-ton truck-mounted.

Mfd. by WAYNE CRANE DIVISION, AMERICAN STEEL DREDGE COMPANY INC.
FORT WAYNE 1, INDIANA

SEE YOUR WAYNE CRANE DEALER TODAY!

Complete service and parts facilities are maintained by Wayne Crane Distributors in all principal cities

LABOR . . . Continued from page 174

have resulted from breakdowns in negotiations. In others the unions and contractors have settled for increases ranging from 10 to 20c per hour. A number of unions agreed to a continuation of the previous year's agreements with no wage changes.

One contractor-negotiator expressed the opinion that, with living costs going down there was no justification for wage increases. Another felt that a stabilizing of building costs would stimulate construction starts and thereby counterbalance any decrease in defense construction.

Tea and Crumpets

The new agreement for carpenters at Weirton, W. Va. provides for "coffee time" of 5 min at 10:00 A.M. daily. The business agent was quoted as saying that this is the first "coffee time" provision ever included in a union agreement. He apparently has never heard of the "tea breaks" provisions in construction union agreements in New Zealand!

Do You Know That . . .

. . . Senate Labor Committee hearings on establishment of a federal Fair Employment Practices Commission have been postponed? Hearings are now scheduled to begin in January 1954.

. . . Cyrus S. Ching, formerly director of the Federal Mediation Service, has been appointed by the President to head the new six-man commission to settle disputes in the atomic energy program? Two other members are George Taylor and Arthur Ross both of whom served on the Wage Stabilization Board.

. . . The Wage Determination Section of the Department of Labor recently pegged highway rates up to 40c an hour higher than the State pays for similar work? The rates were for a bridge project near the airport at Hazard, Ky. CAA, sponsor of the project, has joined other local complainants over the wage determination.

NOTE: Check Construction Methods and Equipment July 1952, p. 178, on employment of minors to be sure that you comply with state and federal laws when taking on this year's crop.



4 Powerful Reasons why costs go down with CHEVROLET ADVANCE-DESIGN TRUCKS on the job

EXTRA POWER WITH ECONOMY! More hauling power, greater economy! That's the result of new 7.1 to 1 compression ratio of improved Loadmaster engine on 5000 and 6000 Series heavy-duty and forward control models—optional on 4000 Series heavy-duty trucks. Thriftmaster engine in light- and medium-duty models provides traditional Chevrolet economy.

ENGINEERED FOR THE JOB! With Chevrolet, you buy a truck that is exactly right for the job. Not too big. Not too small. You get a truck engineered from the ground up with your job in mind—with the right tires, springs, axle, clutch and engine. You get a truck that will stick on the job day after day, and do your work at lowest cost.

BUILT TO LAST! The extra-sturdy construction of Chevrolet advance-design trucks means longer life, even lower costs. Now, Chevrolet trucks are brawnier than before—with heavier, more rigid frames, with greater ruggedness and stamina built right in. These are the toughest and the sturdiest Chevrolets ever.

THE LINE LISTS FOR LESS, TOO! With all the solid superiorities that Chevrolet offers—with all their special features and advantages—this great line of haulers lists for less than any other trucks of comparable size and specifications. See your Chevrolet dealer. Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

TWO GREAT VALVE-IN-HEAD ENGINES—the Loadmaster or the Thriftmaster—to give you greater power per gallon, lower cost per load. **POWER-JET CARBURETOR**—for smooth, quick acceleration response. **DIAPHRAGM SPRING CLUTCH**—for easy-action engagement. **SYNCHRO-MESH TRANSMISSION**—for fast, smooth shifting. **HYPOID REAR AXLE**—for dependability and long life. **TORQUE-ACTION BRAKES**—on light-duty and medium-duty models and on front of heavy-duty models. **TWIN-ACTION REAR BRAKES**—on heavy-duty models. **DUAL-SHOE PARKING BRAKE**—for greater holding ability on heavy-duty models. **CAB SEAT**—with double deck springs for complete riding comfort. **VENTIPANES**—for improved cab ventilation. **WIDE-BASE WHEELS**—for increased tire mileage. **BALL-GEAR STEERING**—for easier handling. **UNIT-DESIGNED BODIES**—for greater load protection. **ADVANCE-DESIGN STYLING**—for increased comfort and modern appearance.

CHEVROLET

first in demand in value in sales



"He Might Need It..."

"He never was much for letter-writing when he was in college. But he must know how anxious Mother and I are . . . now that he's off in Korea. Haven't heard from him in six weeks. Of course, they say 'no news is good news' . . . but I wonder. Maybe he can't write . . . because . . . maybe he's in a hospital somewhere. And maybe he needs blood. I don't know . . . but I'm not taking any chances. That's why *I'm* giving blood."

★ ★ ★

Yes, all kinds of people give blood—for all kinds of reasons. But whatever *your* reason, this you can be sure of: Whether your blood goes to a combat area, a local hospital, or for Civil Defense needs—this priceless, painless gift will some day save an American life!

Give Blood Now

CALL YOUR RED CROSS TODAY!

NATIONAL BLOOD PROGRAM

Business Executives!

✓Check These Questions!

If you can answer "yes" to most of them, you—and your company—are doing a needed job for the National Blood Program.

- ☐ Have you given your employees time off to make blood donations?
- ☐ Has your company given any recognition to donors?
- ☐ Do you have a Blood Donor Honor Roll in your company?
- ☐ Have you arranged to have a Bloodmobile make regular visits?
- ☐ Has your management endorsed the local Blood Donor Program?
- ☐ Have you informed employees of your company's plan of cooperation?
- ☐ Was information given through Plant Bulletin or House Magazine?
- ☐ Have you conducted a Donor Pledge Campaign in your company?
- ☐ Have you set up a list of volunteers so that efficient plans can be made for scheduling donors?

Remember, as long as a *single* pint of blood may mean the difference between life and death for *any* American . . . the need for blood is *urgent!*

FILTERS—A 12-p booklet describing synclinal filters for hydraulic oils, coolants and lubricants for both sump- and line-type units has just been released. Illustrations and charts with tables are used to explain this product fully.—**Marvel Engineering Co., 625 West Jackson Blvd., Chicago 6, Ill.**

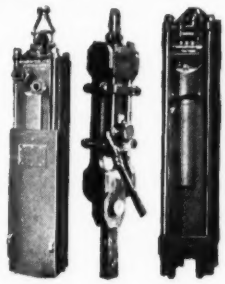
SOIL CONDITIONERS—A synthetic soil conditioner called Bondite, which has been effectively demonstrated to help control rain and wind erosion on construction sites, levees, rights-of-way and similar applications, is described in Bulletin 0-95 in text-book style, giving a step-by-step procedure on how to use the soil conditioner. Another folder is devoted to mobile spray units.—**Organic Chemical Div., Monsanto Chemical Co., St. Louis, Mo.**

CARPENTRY—Two illustrated books on the uses of portable electric tools are available without charge to builders, carpenters and contractors. One, Operating Electric Routers, Planes and Shapers, is 48 pp with more than 100 illustrations. Operation of Electric Saws contains a wealth of information in its 40 pp on advanced uses of the portable power saw.—**Porter-Cable Machine Co., 22 Exchange St., Syracuse, N. Y.**

McKIERNAN-TERRY

Wide-Range Line of

PILE HAMMERS and EXTRACTORS



Now made in complete standardized line of eleven double-acting hammers, five single-acting hammers and two double-acting extractors. Write for free descriptive Bulletins.

Also builders of coal and ore bridges, bulk material unloaders, bridge operating mechanisms, hoists and marine equipment, and specially designed machinery.

McKIERNAN-TERRY CORPORATION

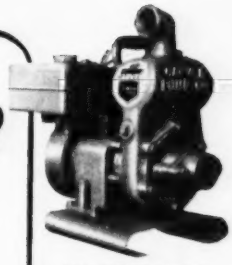
Manufacturing Engineers

14 Park Row, New York 38, N. Y.

Looking for Pumps?

You Name It!

CARVER'S Got It!



1½" SELF-PRIMING
4000 G.P.H.

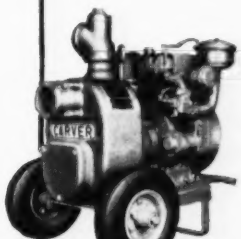
CARVER has the complete line of self-priming construction dewatering pumps starting with the 1½" Model KN1½L — 4000 gallons per hour — the lightest 4M rated pump on the market.

Every CARVER Contractor Pump . . . right up through the 10" giant which will pump 250,000 gallons per hour — has the same simple design, sturdy construction, rugged durability that means efficient performance on every job. No loose parts, only two wearing parts, easily and economically replaced. All models with gasoline, diesel or electric drive.

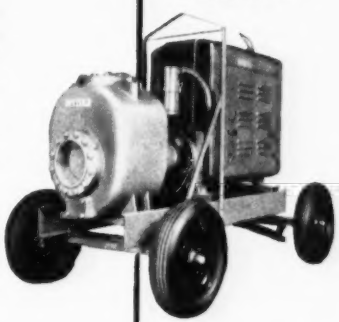
As for diaphragm pumps, CARVER makes one that will handle the roughest, toughest jobs with ease.

CARVER also manufactures a full line of high-pressure jetting pumps for jetting well points, timber and steel piling, flushing, etc.

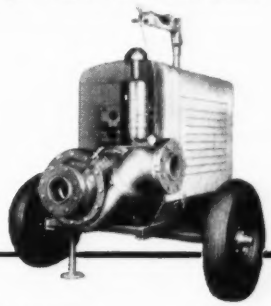
For the complete quality line of pumps see your CARVER Distributor today!



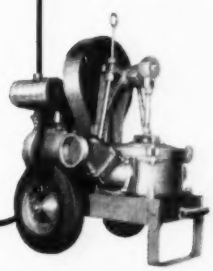
3" SELF-PRIMING
30,000 G.P.H.



10" SELF-PRIMING
250,000 G.P.H.



HIGH PRESSURE
JETTING PUMP



4" DIAPHRAGM PUMP
6000 G.P.H.

See Your
CARVER DISTRIBUTOR
for all your pumping needs!

CARVER PUMP CO., 1402 Hershey Ave., Muscatine, Iowa

CARVER PUMPS

WORKS BOTH ENDS

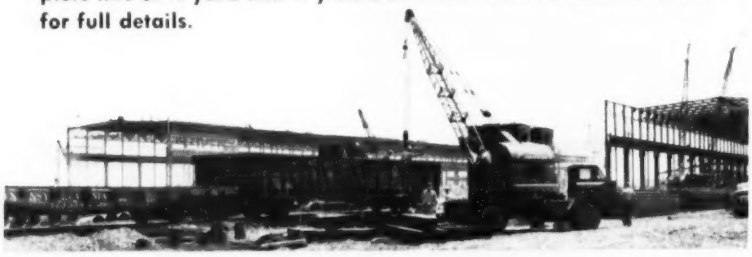
ON BIG STEEL MILL PROJECT...



Get it done . . . and fast! That's the "word" at the site of U. S. Steel Company's new Fairless Works. And that's the reason James Armour Excavating Company is using two MICHIGAN Truck Cranes to handle and distribute materials at this huge steel mill project.

Here's just one example cited by operator Randall Auer: One of the MICHIGANS transferred pipe from a freight car to a truck, then followed the truck to a spot half-a-mile away where it unloaded the pipe. It then accompanied the empty truck back to the car for another load. The process was repeated until all the pipe had been removed from the car. Only MICHIGAN'S *speed and mobility* made it possible to work both ends of this job with one crane.

When you need an excavator-crane that has everything you want *plus* speed and mobility, investigate MICHIGAN . . . most complete line of ⅜-yard and ½-yard excavator-cranes available. Write for full details.



MICHIGAN POWER SHOVEL COMPANY

495 Second Street, Benton Harbor, Michigan, U.S.A.

IT'S YOUR BUSINESS . . .

Continued from page 30

Kraus-Anderson, Inc., 501 S. 8th St., Minneapolis, Minn. shopping center at Glendale (Milwaukee P. O.), Wis. for Bay Shore Center, Inc. National Bank Bldg., Minneapolis, Minn., $5-$8,000,000.

The Austin Co., 227 Curtis Bldg., Detroit, Mich. brick, steel, concrete 92,000 sq ft 44-ft high L-shaped boiler shop, two wings 290 and 500 ft long at Midland, Mich. for Dow Chemical Co., 932 Fisher Bldg., Detroit, Mich., $3,000,000.

Joseph Skilken & Co., 44 E. Broad St., Columbus, Ohio, brick, block, steel shopping center, Monroeville, Pittsburgh, Pa. for Pittsburgh Miracle Mile Town & Country Shopping Center, 42 S. 4th St., Columbus, Ohio, $5,000,000.

James D. Morrissey, Inc., 9119 Frankford Ave., Philadelphia, structures, grading, drainage, paving 4.16 mi Delaware River Extension of Turnpike, Montgomery County, and construction structures, grading, drainage, paving 3.44 mi Delaware River Extension, Bucks County, $5,385,322.

North Lake Cement Co., c o Wolf Rd. & North Ave., North Lake City, Ill., 500 homes in Leyden Twp., Melrose Park, Ill. for Chicago Title & Trust Co., North Lake City, $7,000,000.

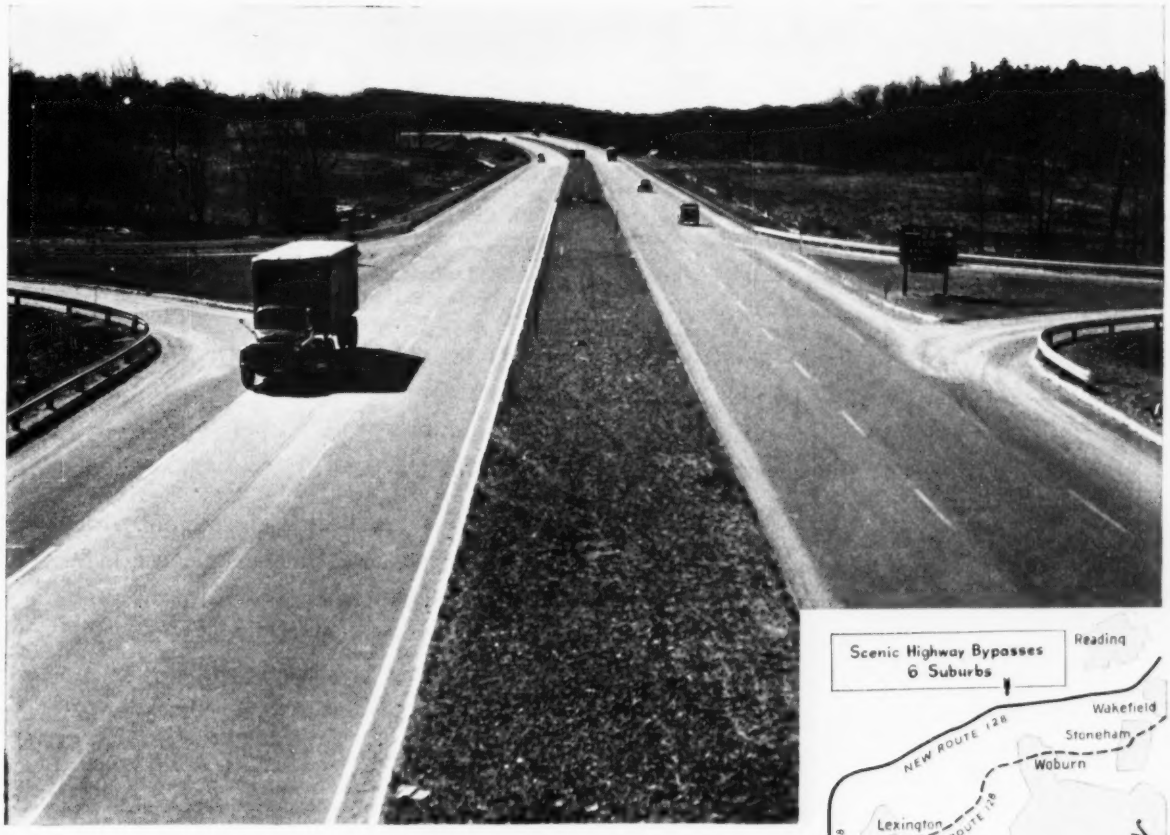
John McShane, Inc., 1501 N. Arlington Ridge Rd., Arlington, Va., apartment development including 9-floor buildings, 1,679 apartment units and shopping center, Arlington, Va. for Arlington Towers Corp., 16th and North Arlington Ridge Rd., Arlington, $25,000,000.

S. J. Groves & Sons, Wesley Temple Bldg., Minneapolis, Minn., grading, draining, approximately 6.3 mi West Virginia Turnpike including substructures for 9 bridges, relocation of 1 mi state highway, $5,864,541.

C. F. Braun, Inc., 1100 S. Fremont St., Alhambra, Calif. catalytic reforming unit, Marcus Hook, Pa., for Sinclair Refining Co., 600 Fifth Ave., New York City, $14,000,000.

Alvin Aubinoe, Inc., 1515 19th St., N. W., Washington, D. C. parking-shopping center, Wildwood Manor, Bethesda, Md., $10,000,000.

H. J. Williams Co., Inc., Sumner St. & W.M.R.R., York, Pa. 5.93 mi Harrisburg - York - Baltimore Expressway, including 3 structures, for Pennsylvania State Highway Dept., 506 N. Office Building, Harrisburg, Pa., $3,570,540.



New bypass helps motorists rim the hub in about 30 minutes. The new 4-lane highway also connects Worcester Turnpike with Newburyport Pike.



Here's a good example of the work state highway departments and roadbuilders are doing to relieve congested highways throughout the country. The new Northern Circumferential Highway eliminates congestion, saves tempers and time.

New Bypass Unsnarls Traffic in Boston Area

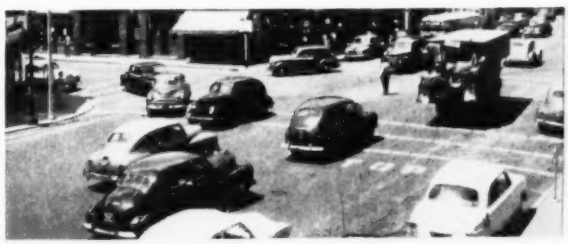
Not long ago, motorists using Route 128 outside of Boston had to tackle traffic in six suburbs. This meant a slow, tortuous 70-minute trek through city streets filled with cars and trucks.

Today, a new 4-lane highway helps motorists rim the hub in about 30 minutes. For this reason, approximately a million cars a month now use the new, 22-mile Northern Circumferential Highway.

This new highway was completed by seven contractors at a cost of $18,000,000. Bethlehem furnished structural steel, reinforcing steel and guard rails.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation



Old Route 128 ran through six Boston suburbs. New route relieves former congestion like this shown here on outskirts of Boston.

STEEL FOR HIGHWAYS

BETHLEHEM STEEL

Dowel Units • Reinforcing Bars • Guard Rail
Hollow Drill Steel • Spikes • Bolts and Nuts • Tie-Rods
Timber Bridge Hardware • Sheet- and H-Piling

Some new thinking on DENSITY *in* ASPHALT ROAD CONSTRUCTION

IN VIEW of the fact that density under a screed or tamper varies with the thickness of material above the high or low spots in the subgrade, and in the presence of large stones in the mix, any approach to securing absolute uniformity in the thickness of a road from subgrade to surface would be an approach to uniformity in density. Obviously uniform thickness is the result of accuracy in grading and accuracy in spreading.

Here, for the first time, is a real approach to the ideal conditions required for absolutely uniform density and uniform thickness with a truly level course the full width and length of any road, from subgrade to surface.

The Adnun with the Fluid Level is not just a Black Top Paver! Not just a Material Spreader! With the Fluid Level the Adnun is a complete Road Builder! The Fluid Level makes it possible to begin with your properly graded subgrade and lay the base course of any material to an absolute plane the full width and length of the road. Successive courses of asphalt will be equally uniform. With uniformity of thickness in each successive course from subgrade to surface you have an approach to uniformity in density never before possible.

The Fluid Level takes out the dips that won't show under a straight edge. It brings long wheelbase results to an already compact, easily portable unit. It makes possible greater surface smoothness that results in better drainage and reduced breakdown. The possibility of holding error to within one or two per cent, means less waste of material and cuts costs to the taxpayer and the loss for the contractor. Investigate this method of building roads. It brings you a long sought answer to better built, lower cost roads that will go far toward meeting today's traffic problems.

Ask for the booklet, "Put A Level On Your Roads", for more details.



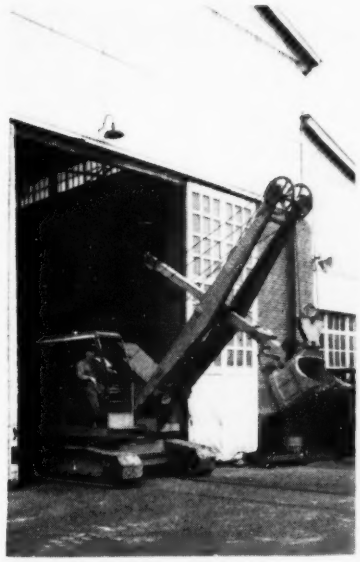
This little booklet entitled, "Put A level On Your Roads", tells you all about the Fluid Level. If you haven't seen it, send for it.

ADNUN
TRADE MARK REGISTERED
BLACK TOP PAVER

BLAW-KNOX

FOOTE CONSTRUCTION EQUIPMENT DIVISION OF BLAW-KNOX CO.
1910 State Street, Nunda, New York

BLAW-KNOX



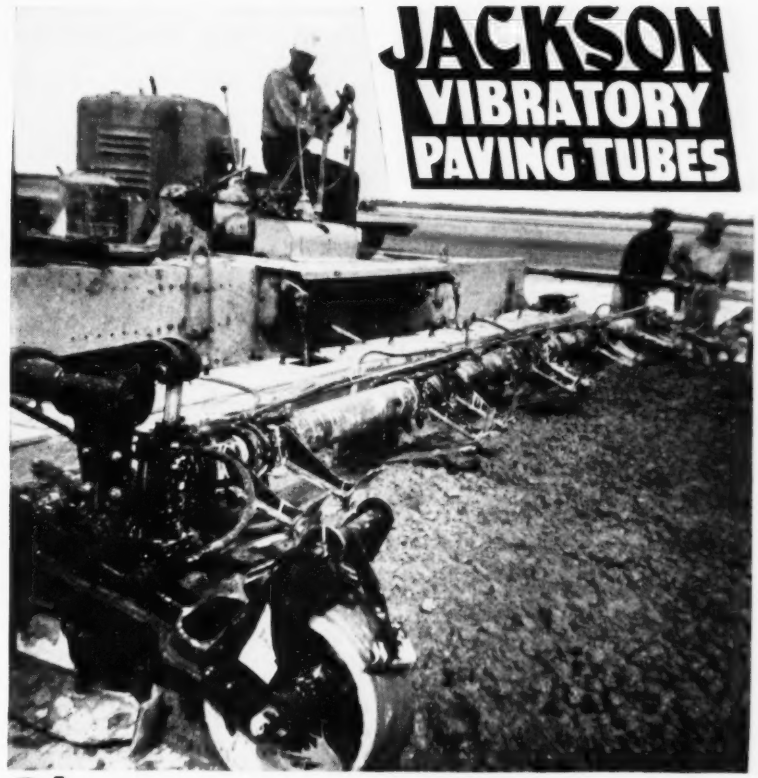
Koehring Shovel Plant Opens at Chattanooga

CHATTANOOGA, TENN., becomes an important manufacturing center for construction equipment with the advent of Koehring Southern Co., subsidiary of Koehring Co., Milwaukee, Wis. Koehring Southern bought the old Bendix plant in North Chattanooga, well suited to shovel and crane production with a main manufacturing area 120x800 ft.

Well laid out, and beautifully tooled up, the new plant will turn out all ½-, ¾- and 1-yd shovels for Koehring, and doubles their previous shovel manufacturing facilities. The above picture shows the first ½-yd rig coming off the production line.

Koehring Southern kicked off this new venture with a 6-day celebration starting April 17, when the press and Chattanooga city officials were guests. Succeeding days were devoted to showing off the plant to the public, contractors, Koehring distributors and county commissioners. A big outdoor display of all Koehring products proved almost as popular as the manufacturing facilities.

E. A. Brugger, vice-president in charge of production for Koehring, told the press that they expected to turn out 2 million dollars' worth of equipment this year, and "for the future we plan to add two more models to our line". Nick Decker has been named manager of the new plant.



JACKSON VIBRATORY PAVING TUBES

Now SUPER-POWERED More FLEXIBLE FOR THOROUGH INTERNAL VIBRATION OF ALL SLABS 6" TO 24" THICK - UP TO 25' WIDE!

Now supplied with far more powerful motors, as many as five to the 25' width, there is no job of concrete HIGHWAY OR AIRPORT PAVING too tough for the JACKSON VIBRATORY PAVING TUBE! Extremely flexible, it may be had with just the number of motors needed and vibratory frequency variable to suit concrete mix. Easily attached to standard finisher or spreader, its use assures:

1. Maximum compressive strength and impermeability of the hardened concrete through use of dryer, more economical mixes. 2. Faster finisher progress in normal highway paving. 3. Complete and uniform compaction throughout the mass, with no mortar streaks — even on 25' airport slabs. (It is equally efficient where air-entraining cement is used). 4. Adequate puddling at sideforms on the average paving job. 5. Excellent finish without excessive mortar. 6. Reduction in spreading cost wherever a spreader is not used . . . the powerful vibratory action and plasticity achieved, smooths out the major humps and hollows.

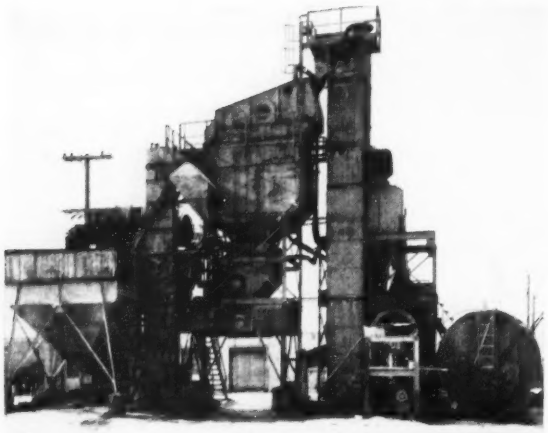


For better results, as well as time-and-money savings to be achieved on any major concrete paving job, get the complete facts concerning the Jackson Vibratory Paving Tube. See your Jackson Distributor or write to us.

JACKSON VIBRATORS, INC.

LUDINGTON, MICHIGAN

Cummer Asphalt Plants and the World's Busiest Highways Have Grown Up Together



Put Cummer Plants to Work Building Your "Roads to Profit"

The stupendous, unceasing movement of American people and American goods is made possible by twin developments as closely related as two sides of a coin — the vast network of highways and automotive transportation. Cummer, which has been building fine asphalt plants since 1895, has been identified with this amazing growth and expansion from the very beginning.

Typical of dependable Cummer Asphalt Plants — famous for over half a century for profitable production — is the stationary model shown here owned and operated by Asphalt Paving Products Company, Inc., Detroit, Michigan. Designed for efficiency and ruggedly constructed, this Cummer plant consistently produces 80-125 tons per hour (based on 5% initial water content, dried to within ½ of 1% and heated to 350°-400° F.) This complete plant is equipped with dust elevator, washer, enclosed hot elevator. Electrically powered throughout, each unit is individually driven.

Cummer Plants Incorporate These Superior Features:

Mixing towers with vibrating screens and mixer.
Dust collector discharging reclaimed dust into hot elevator.
Two furnace combustion with low pressure burner equipment.
Cold storage bin and feeder.
Enclosed hot elevator.
Diesel or electric power.

CUMMER PLANTS—complete with all motor and starter switches—are available in sizes from 55 to 125 tons per hour. Send for your copy of the descriptive Cummer Catalog today.

THE F. D. CUMMER & SON COMPANY

1827 East 18th Street Pioneer Builders of Fine Asphalt Plants **Cleveland 14, Ohio**

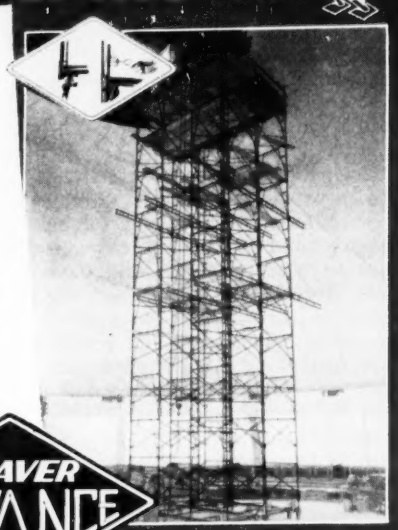
COST CUTTING BECOMES SIMPLE ARITHMETIC WITH ADVANCE SCAFFOLDING



The ability to make money is built into ADVANCE tubular steel scaffolding. Each feature—self-contained, simple to operate Cam Locks . . . trigger action panel attaching Stack Locks—is employed so as to assure user-profit. Unequaled acceptance and repeat rentals and purchases by building and trade contractors as well as building owners prove that ADVANCE scaffolding is best for any construction and maintenance problem.

Are you getting in on the simple arithmetic that spells savings in dollars for scaffolding users? ADVANCE can help you get started! Write direct for free literature, engineering and specification data.

BEAVER-ADVANCE products are distributed nationally through industrial and construction equipment dealers. Inquiries re distributorships are invited.



BEAVER ADVANCE

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ADVANCE SCAFFOLD DIVISION

BEAVER ART METAL CORPORATION, ELLWOOD CITY 3, PA.

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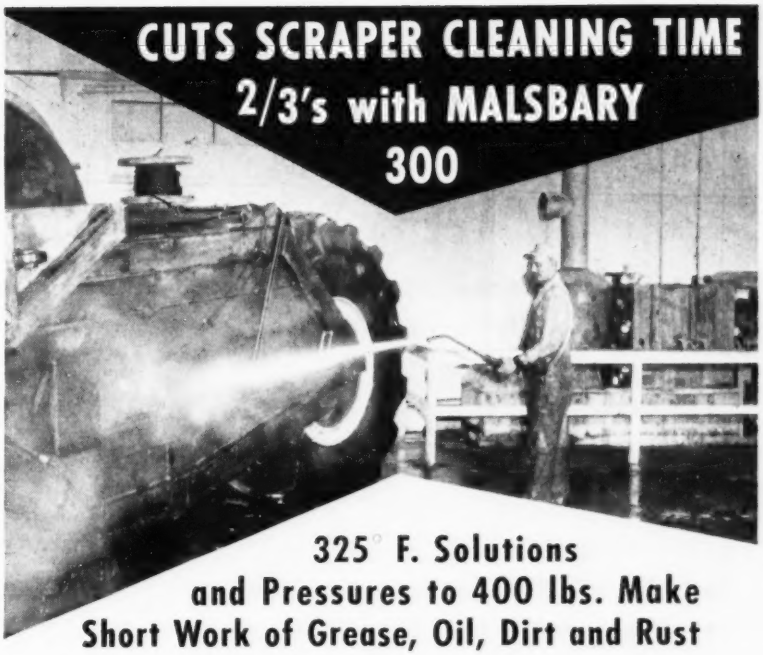
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325° F. Solutions and Pressures to 400 lbs. Make Short Work of Grease, Oil, Dirt and Rust

This shop switched to a MALSBARY 300 heavy-duty cleaner for steam cleaning scrapers, tractors and dozers before painting. Its high pressures blast grease, oil, dirt and rust from 17½-yard scrapers in an hour or less. That's 3 times faster, reports methods engineer, than previous steam vapor cleaner did. And downtime is practically unheard of—this MALSBARY 300 works 8 hours daily, 5 days a week.

Why Malsbary Does More, Quicker

Cleaning equipment is much like washing your hands—the dirtier they are the more you need lots of solution (soap and water), heat and pressure. With MALSBARY exclusive patented pumping system you get all three—volume, heat, high pressure. For example, you:

Steam clean at 150-250 p.s.i. yet keep solution at 325°F.—an impossibility with other cleaners.

Rinse with 300-2100 gallons of warm water per hour.

Blast stubborn dirt with cold water at 400 p.s.i.

See for yourself—*fill in coupon NOW.*

Heavy-duty MALSBARY cuts average cleaning time to—
D6, D7, D8 ..... 1½ to 2 hrs.
Motor Grader ... 3½ hrs.
Payloader ..... 45 minutes
Street Sweeper .. 2 hrs.

MALSBARY
SINCE 1921 MANUFACTURING CO.
Room C6, 845 92nd Ave., Oakland 3, Calif.

Malsbary Mfg. Co., Room C6, 845 92nd Ave., Oakland 3, Calif.
I AM INTERESTED IN —
☐ On-the-job demonstration.
☐ Free booklets on MALSBARY Cleaners.
☐ "How To Make Efficient Use of Steam Cleaning" reprint.

MAIL TODAY!

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BUSINESS _____
ADDRESS _____

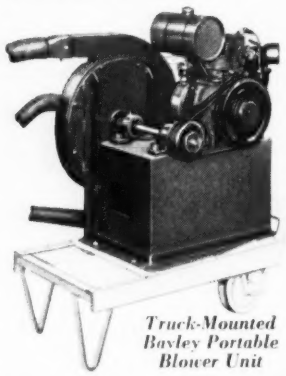
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Bayley PORTABLE BLOWERS & EXHAUSTERS

For Those "Hard-To-Get-At" Construction Applications

- ★ **Underground Ventilation in Tunnels, Shafts, Wells, Etc.**
- ★ **Materials Handing**
- ★ **Interior Tank Painting**
- ★ **Welding Inside Enclosures**

There is a proper size and capacity in a BAYLEY Portable Blower or Exhauster available for your special requirements. Tell us your problems—BAYLEY can supply the equipment needed to do the job!



Truck-Mounted Bayley Portable Blower Unit

Bayley BLOWER COMPANY
Engineered Air-Handling Equipment

6606 W. Burnham St. • Milwaukee 14, Wis.



WELLMAN
easy handling of large stones

● Those big stones won't slip from the Wellman Stone Grab. Four-part closing cable reeving develops tremendous closing force on stones. Model shown has 5-ton capacity, 4½ foot jaw spread. Other capacities available.

Want Facts?
Send for free descriptive bulletins.

THE WELLMAN ENGINEERING CO.
7000 CENTRAL AVENUE • CLEVELAND 4, OHIO

STONE AND WOOD GRABS • CLAMSHELL, DRAGLINE, CUSTOM-BUILT BUCKETS

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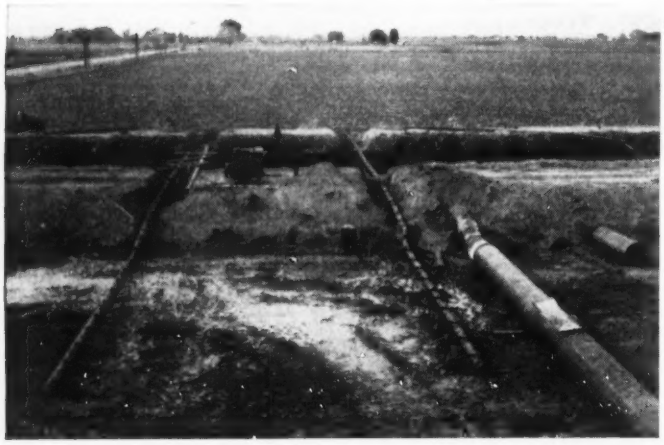

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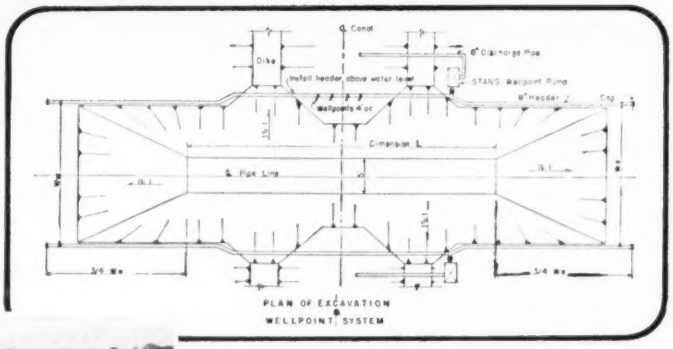
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Pacific Pipeline and Construction Company, Gen. Contractors, "Bud" Abernathy, Proj. Supt.



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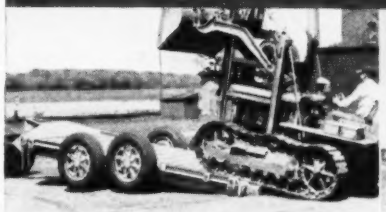
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CONSTRUCTION
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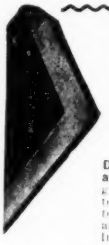
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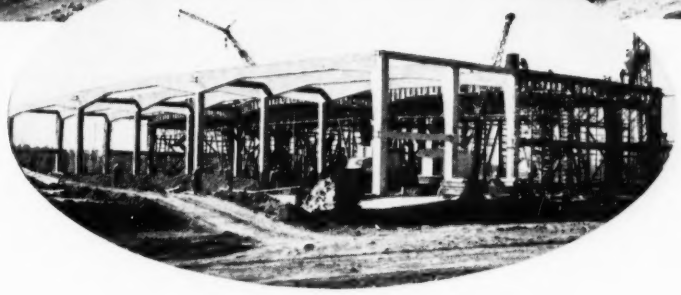
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The warehouses required 26,400 roof slabs approximately 5' x 18'6". During cold weather Lehigh Early Strength Cement helped maintain the daily production of 140 slabs without additional molds.

Form and overhead costs cut 50% with LEHIGH EARLY STRENGTH CEMENT

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Without Lehigh Early Strength Cement, at least twice as many forms would have been needed and the cost of overhead would have doubled.

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Methods Memo . . .

INFORMATION TO HELP YOU is our stock in trade. CONSTRUCTION METHODS AND EQUIPMENT editors constantly are traveling, writing and arranging for articles and pictures dealing not so much with job stories as with descriptions of processes, methods and the proper use of equipment to get greatest value from it.

In this issue (beginning page 102), you will see a step-by-step description of a foundation job using Franki Displacement Caissons. Although 2,000,000 Franki units have been installed around the world, only a few heretofore have been used in the U. S. An informative article on the many uses for wellpoints begins on page 72.

Hank Perez covers the construction of a rock-fill dam in North Carolina in an absorbing piece beginning on page 52. More helpful information on tractor shovels—correct operating procedures—appears in an article beginning on page 109. You will want to keep on the lookout for a similar piece on the development and use of shovels and loaders mounted on rubber-tired wheel units.

CONCRETE LIFE PRESERVERS may not exactly become a fad, but several have been made recently for publicity purposes by the Perlite producers. To prove that Perlite aggregate is light and easy to handle, several solid Perlite concrete rings were cast in the shape of life preservers.

Then, at the recent meeting of the Perlite Institute, two bathing beauties each floated in a pool of water on the Perlite concrete rings. The concrete, reinforced with wire mesh, was mixed in the ratio of one bag of portland cement to 6 cu ft of Perlite concrete aggregate. This mix has an oven-dry weight of 26 lb/cu ft.

WE SPENT an interesting couple of days the last month at the Dow Corning Corp., Midland, Mich., producers of Silicones, to help them celebrate their 10th anniversary. Just in case you have no idea what a Silicone is, here is the way Dow describes one. "If a silicone were a woman you'd forget all about your first love and your pet cover girl. You'd set off in quest of the Silicones, because they have all virtues you dream about, but never find in one woman. They are more constant and more faithful by far than Lucretia. They won't run off with the first stray oxygen atom that happens along. They're superbly indifferent to the ice man. Silicones are completely and permanently satisfied. They are not drab and dowdy. They have all of the sophistication and polish that we associate with a Powers model."

Regardless of how you want to define a Silicone, many manufacturers have found good uses for them. Dow's business in 1943 amounted to $15,000 per month and now ten years later it is 100 times greater, or more than $1,500,000 per month. The silicones are used in electrical insulation, protective coatings, defoamers (you can even pour beer now without the foam), lubricants, fluids, water repellents, polishes, etc.

We were particularly interested in a product Dow calls "Silastic." It looks and feels like ordinary rubber, although it contains none. It remains rubbery at both extremely high and low temperatures. Dow is developing it so it now has physical strength and elastic properties comparable to those that exist in ordinary rubbers. Look for some of this "Silastic" to be used in the construction business before many months.

We saw quite a number of other ideas being developed that could very well fit into the construction industry, but it is a little too early to talk about them.

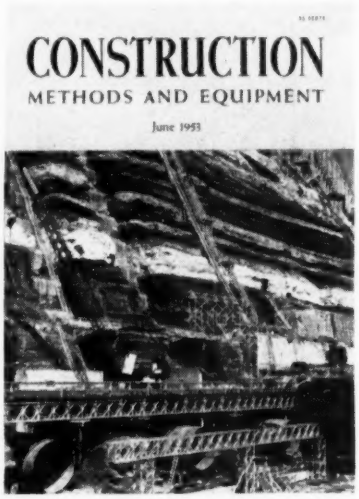
One thing for sure—they have about 200 engineers and scientists up there at Dow who are devoting their time to making our life a little better, and no matter what segment of industry you are in, you can't help feeling some of the effects of their efforts.

WHOEVER WOULD HAVE THOUGHT that Mrs. O'Leary's cow and the famed Chicago fire of the 1870's would prove an obstacle to a contractor in 1953? J. W. Griffith, contractor, who has the job of erecting the underground garage being constructed on Michigan Ave. and Grant Park encountered the fill from the old fire when sinking footings for the new structure. Because the fill sloped off at a rather sharp angle, it presented a problem to keep some of the buildings on Michigan Avenue from sliding. The contractors took it in stride, however, and latest reports are the 2,356-car garage is progressing on schedule.

LET'S TAKE CARE of the equipment and boost job profits through less downtime and smaller repair bills. But it is going to take more education—more education on the part of everybody from the big boss right on down past smaller bosses to the operator and the maintenance man. The best term for it is "Productive Maintenance."

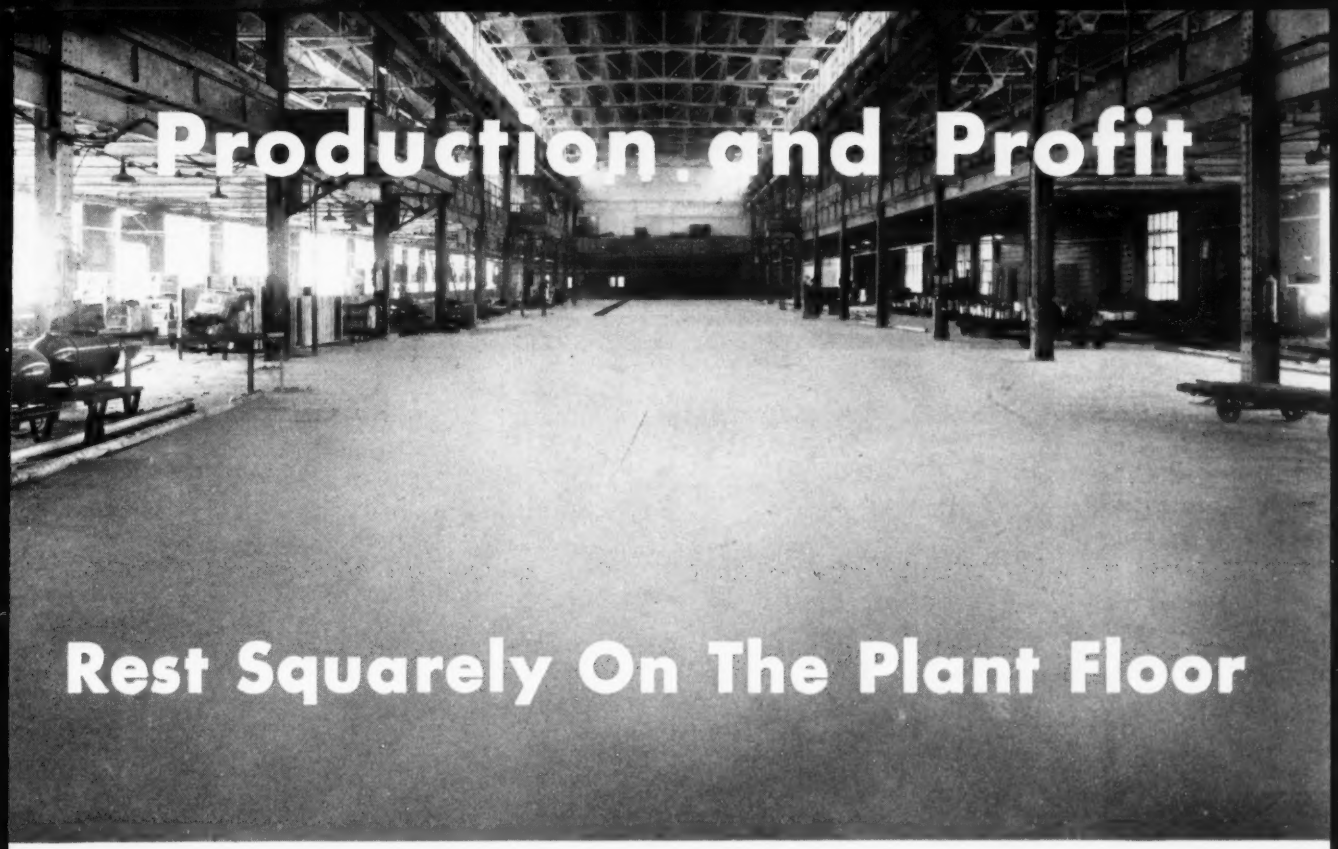
You can help that learning process by making available to all concerned in your operation copies of the Fifth Annual Equipment Maintenance Directory of CONSTRUCTION METHODS AND EQUIPMENT—being published next month.

There will be an improved and expanded Inventory of Maintenance Manuals available for the proper operation and servicing of hundreds of machines, power tools and related accessories. And, as in former issues, there will be feature articles, pictures and tips by the dozen to help all construction men keep their equipment on the go when the jobs are roaring along.



On the Cover . . .

Working close to 300 ft below the rim of Niagara Gorge, Horton Steel Works, Ft. Erie, Ont., sets sections of 19-ft steel penstock with a Manitowoc Speedcrane for the Sir Adam Beck No. 2 Generating Station being built by The Hydro-Electric Commission of Ontario (CM&E, Mar. '53, p. 64 and Feb. '52, p. 48). Ontario Hydro is building the huge plant with their own construction forces, except for penstock erection, under the direction of Gordon Mitchell, project manager. Notice how they use Bailey bridging for temporary trestles, an old Ontario Hydro custom. Coming down the cliff, at right center, is the Pumpcrete line that supplies all concrete for powerhouse construction from a receiving hopper on top. When completed, the generating station will contain 12 units of 100,000 hp each. By this time about half the penstocks are finished, and powerhouse superstructure is beginning to rise above the foundations shown here.



View of Masterplate Floor in The Bryant Heater Co. Plant, Indianapolis, Indiana. In excellent condition after 7 years of service. Archt.—Allen and Kelly; Contr.—Wm. P. Jungclaus Co.—both of Indianapolis, Indiana.

MASTERPLATE "Iron-Clad" Concrete Floors

Wear 4-6 Times Longer . . . Help To . . .

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- Maintain Production
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- Improve Safety

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INSTALLED LIKE THIS . . .



APPLY Masterplate dust-coat to **freshly floated** concrete.



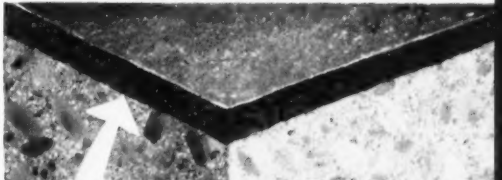
FLOAT dust-coat **on surface** of slab by hand or by machine.



TROWEL to desired finish — non-porous, easy-to-clean.



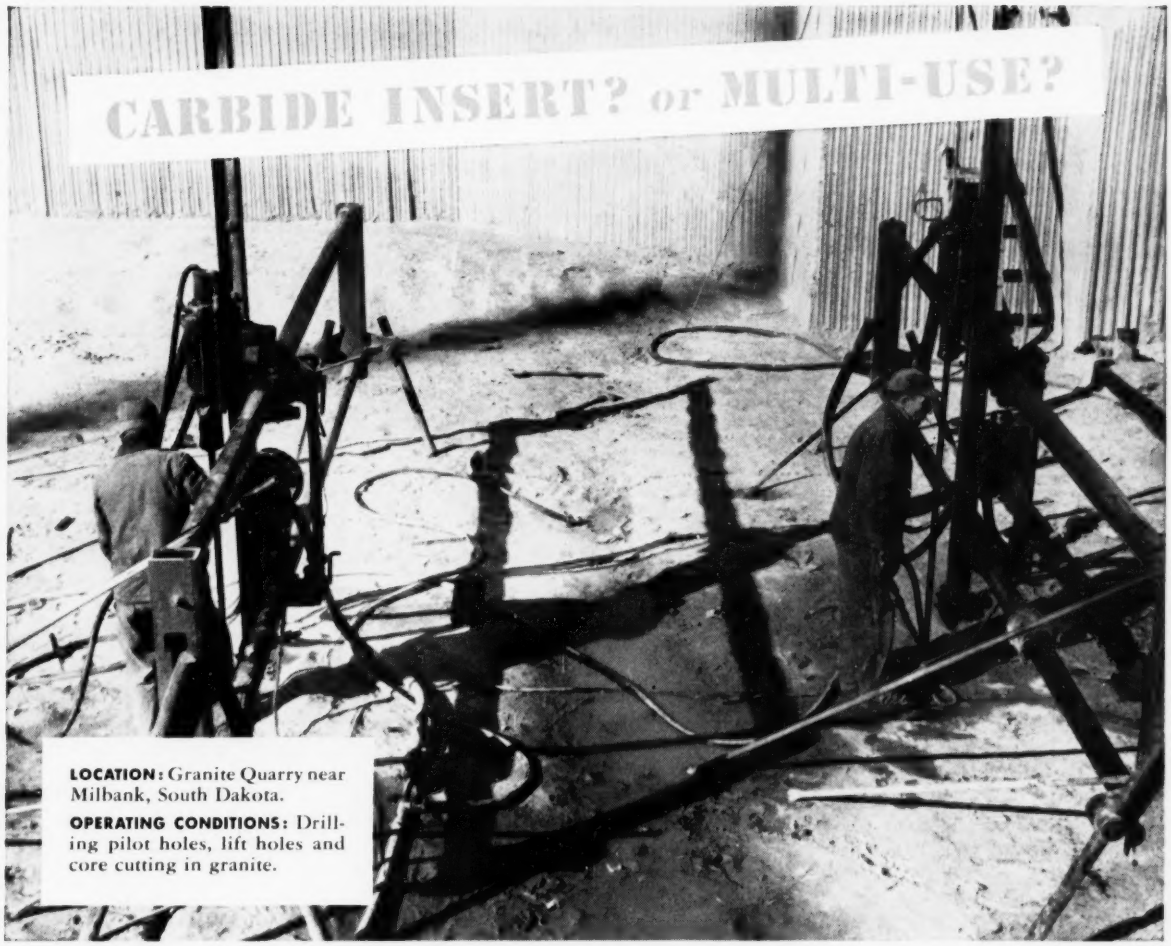
CURE with Master Builders membrane curing compound.



Section of A Masterplate Floor
Note Thickness of Iron-Armored Surface

the MASTER BUILDERS Co.

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Timken threaded multi-use rock bit



Timken threaded carbide insert rock bit

your best bet for the best bit ...for every job

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